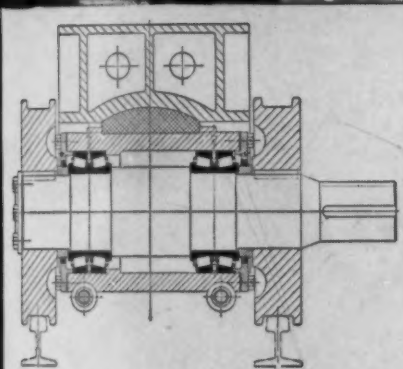


The Iron Age

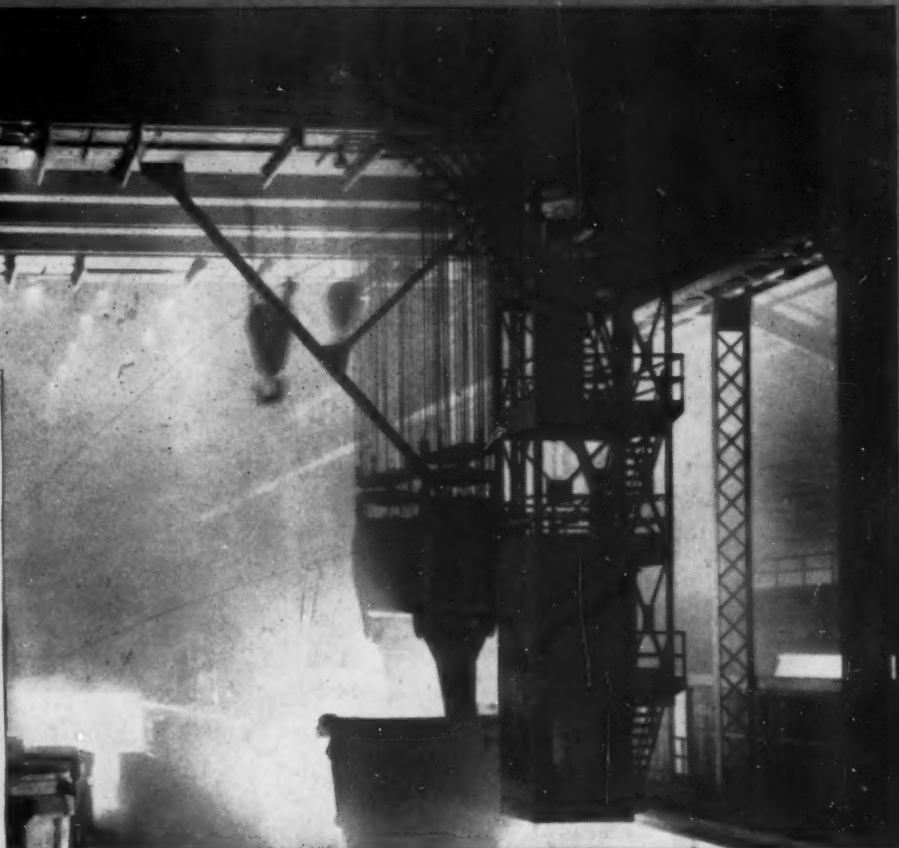
A Chilton Publication

THE NATIONAL METALWORKING WEEKLY

AUG 6 - 1954
EAST ENGINEERING LIBRARY August 5, 1954



How THE ALLIANCE MACHINE COMPANY mounts trolley wheels for the world's biggest ladle crane on Timken tapered roller bearings to assure less friction, longer life, minimum maintenance.



World's biggest ladle crane travels smoothly, dependably on TIMKEN® bearings

THE quick and safe movement of tons of molten metal is the job of the world's largest ladle crane, built by The Alliance Machine Company. One way Alliance engineers make sure it gives trouble-free performance is by mounting each of the trolley's double-flange track wheels on Timken® tapered roller bearings.

The tapered design of Timken bearings lets them take both radial and thrust loads in any combination. Because of line contact between rollers and races, Timken bearings provide high capacity in a small space. Result: they carry the heavy loads on the trolley's wheels with capacity to spare. And because of the true rolling motion and smooth surface finish of Timken bearings, wheels start quickly, turn smoothly, with minimum friction.

By holding housings and shafts concentric, Timken

bearings make closures more effective—dirt stays out, lubricant stays in. Maintenance and lubrication costs are cut.

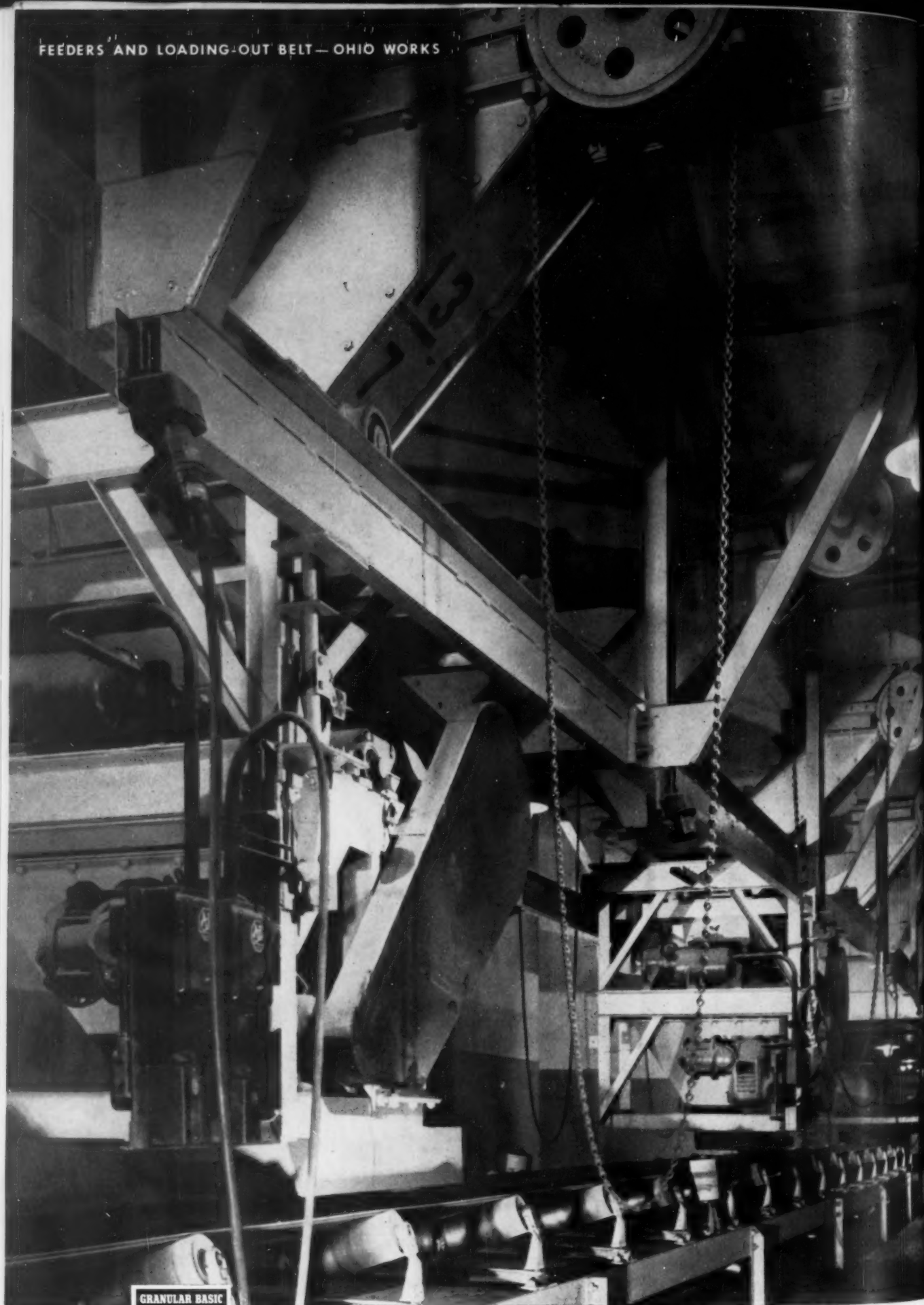
Always specify Timken bearings for the machinery you buy or build. Look for the trade-mark "Timken" stamped on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS



NOT JUST A BALL — NOT JUST A ROLLER — THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION

FEEDERS AND LOADING-OUT BELT—OHIO WORKS



Only through extensive, modern production facilities and by continued product development can we furnish the steel industry with a dependable supply of granular basic refractories—premium products at competitive prices.

BASIC REFRACTORIES INCORPORATED CLEVELAND 15 OHIO

"I have to bake every slab to a turn"



As you tour the sheet mill at our Sparrows Point plant, one of your first stops will be the control room where the temperatures in the slab reheating furnaces are regulated. Here you'll see Stan, the heater, presiding over an imposing array of recording pyrometers.

Stan's job is a ticklish one. He "soaks" each slab in the furnace to the exact point where it's just right for rolling. Too much heat results in excessive scale, which is wasteful and undesirable; too little heat means low finishing temperatures and an "off" product.

"Look at all the scientific gadgets they've given me," Stan will tell you with a wave of his arm. "But reheating slabs still takes a lot of experience and judgment. And in a mill that's shooting all the time for 100 per cent quality, I have to bake every slab to a turn."

Stan has a point there. For he plays a strategic position on a highly expert team.

Good equipment, good material, and good men—all are essential to make good sheets. The equipment in Bethlehem's sheet mills at Sparrows Point and Lackawanna is second to

none. The steel we use reflects all we have learned in a generation of making steel for flat-rolled products. And on the human side, from top supervision all the way through, operations are in the practiced hands of an extraordinarily keen and quality-minded bunch of men.

Like any good team, this one is out to win. Their aim can be stated very simply. It is nothing less than to produce the best hot-rolled and cold-rolled steel sheets made anywhere. With so many other companies turning out an excellent product, that is a tall order.

How is our team doing? Self-praise is unbecoming, and anyone can claim "the best." But this much we can say: our sheet mills at Sparrows Point and Lackawanna are producing sheets that at the very least will stack up favorably with the best the industry is making. Sheets that are as finely finished, as easy forming, as true to gage as any on the market. Sheets as fine as you can buy!

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation



BETHLEHEM SHEETS

Starred items are digested at the right

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NEWS DEVELOPMENTS

WHAT THE NEW TAX BILL MEANS TO YOU — P. 33
Business and industry will have an opportunity to save \$400 million in taxes this year through the more liberal depreciation writeoff policy in the tax revision bill passed by Congress last week. It's no giveaway program and it doesn't increase overall tax deduction on new equipment. But it lets you write off capital assets more quickly in the beginning. It will be a big aid where obsolescence is rapid.

POUR FIRST ALUMINUM INGOT AT KITIMAT — P. 56
Aluminum Co. of Canada poured the first ingot last Tuesday at the new Kitimat smelter. Behind the pouring were 3 years of grueling work by 10,000 men, an investment of \$275 million so far, and one of the great engineering achievements in North America. Present capacity is 91,500 tons annually—but it can be expanded to 550,000 tons per year.

CONFIRM STEEL MERGER NEGOTIATIONS — P. 61
Bethlehem chairman Eugene G. Grace last week confirmed the persistent rumor that his firm has been talking merger with Youngstown Sheet & Tube. There's been no agreement reached yet and many details remain to be worked out. No others involved.

JOB OF NSIA IS BREAKING BOTTLENECKS — P. 65
Unique industry group, National Security Industries Assn., renders invaluable service to Defense Dept. Organization provides vast reservoir of industrial experience to solve arms production problems. Membership is over 600 firms. Navy gives highest civilian honor to NSIA secretary.

HOW TAX CHANGE HELPS YOU, YOUR FIRM — P. 77
Passage of President Eisenhower's tax reform bill will aid both your firm and yourself. Detailed breakdown of numerous changes. How the tax revision will help strengthen the economy.

WILSON TELLS PENTAGON WE NEED MORE MEN—P. 79
Further evidence of the coming expansion (small but significant in the overall defense program) comes to light in Defense Secretary Wilson's order to the Army to plan on 18 divisions instead of 17. Troops will be spread thinner. It will mean more orders to industry for vehicles and light weapons.

IN METALWORKING

ENGINEERING & PRODUCTION

IMPROVED COKE ADDS TO CUPOLA EFFICIENCY—P. 97

A new foundry coke with high density and low internal porosity is being used to improve cupola operation. Direct results are new economies in foundry operation. Melting rate and metal fluidity are increased. Refractory burnout is reduced. Normal operating temperatures are reached more quickly. The coke, low in sulphur, has an ashed content of about 4 pct. Cost of the metallic charge can be reduced in some cases.

BUDGET TOOLING CUTS COSTS ON SHORT RUN—P. 100

An ingenious combination of low-cost tooling methods was recently used to produce a short run order of cone assemblies in record time. Both tools and parts were completed in 5 weeks. Plastic dies, flow-turning, and hydroforming operations were combined.

SMALL PARTS HEAT TREATING SIMPLIFIED — P. 102

Furnace adaptability is a prime requirement where long and short runs of many small parts are scheduled through a continuous heat treating operation. The shaker type furnace, especially suited to this type operation, can be readily timed to meet many specific time-temperature requirements.

PLAN YOUR FOUNDRY RESEARCH FOR PROFIT — P. 104

New solutions to major foundry problems stem from a rounded program of planning and research. Here's how one company is meeting production problems through a carefully planned study of foundry methods.

MACHINING: HYDRAULIC TRACER CONTROLS — P. 106

Hydraulic tracer controls are being used to simplify machining of complex parts and to decrease production costs in machining of simple parts. Used with templates and cams, the tracers increase versatility of standard equipment.

MARKETS & PRICES

BETTER EFFICIENCY PAYS OFF IN STEEL — P. 59

Company balance sheets are showing the value of improved efficiency to the steel industry. While first half production dipped 24 pct from first half '53, earnings were only 15.7 pct lower. Second quarter better than first. U. S. Steel sees 70 to 75 pct rate in second half. IRON AGE details earnings.

SECOND HALF AUTO SALES OUTLOOK CHEERFUL—P. 74

No one seemed exactly sure last week what had happened to auto sales in the opening weeks of July. One source reported them nearly equal to June, another indicated a 43 pct skid in the first 10 days of the month. But everybody agreed that industry leaders are high-spirited over prospects for the rest of the year. Fall debuts becoming a firm trend.

SEE STEEL INVENTORIES FACTOR IN UPTURN — P. 145

Steel inventories may be almost as big a factor in the expected market upturn as they have been in the downturn. Inventory correction was probably the strongest factor in the easing market. Many firms now have stocks too small to support business improvement.

SEE STEEL MARKET PICKUP IN THE FALL — P. 147

August predicted as another slow month. Some orders have been shifted over to September. Producers hope upturn will be sighted by that time. But buyers will call the turn for several months to come. Gradual pickup is expected stretching on into 1955.

ALCOA, USW SIGN; REYNOLDS WORKERS STRIKE—P. 148

In a last minute settlement that will boost aluminum prices, Aluminum Co. of America granted a 12¢ package increase to the United Steel Workers. Generally following the steel settlement, it was expected to set the pattern for other firms—but work stoppages began Sunday in eight Reynolds plants, were still in effect at presstime. No word on Kaiser.

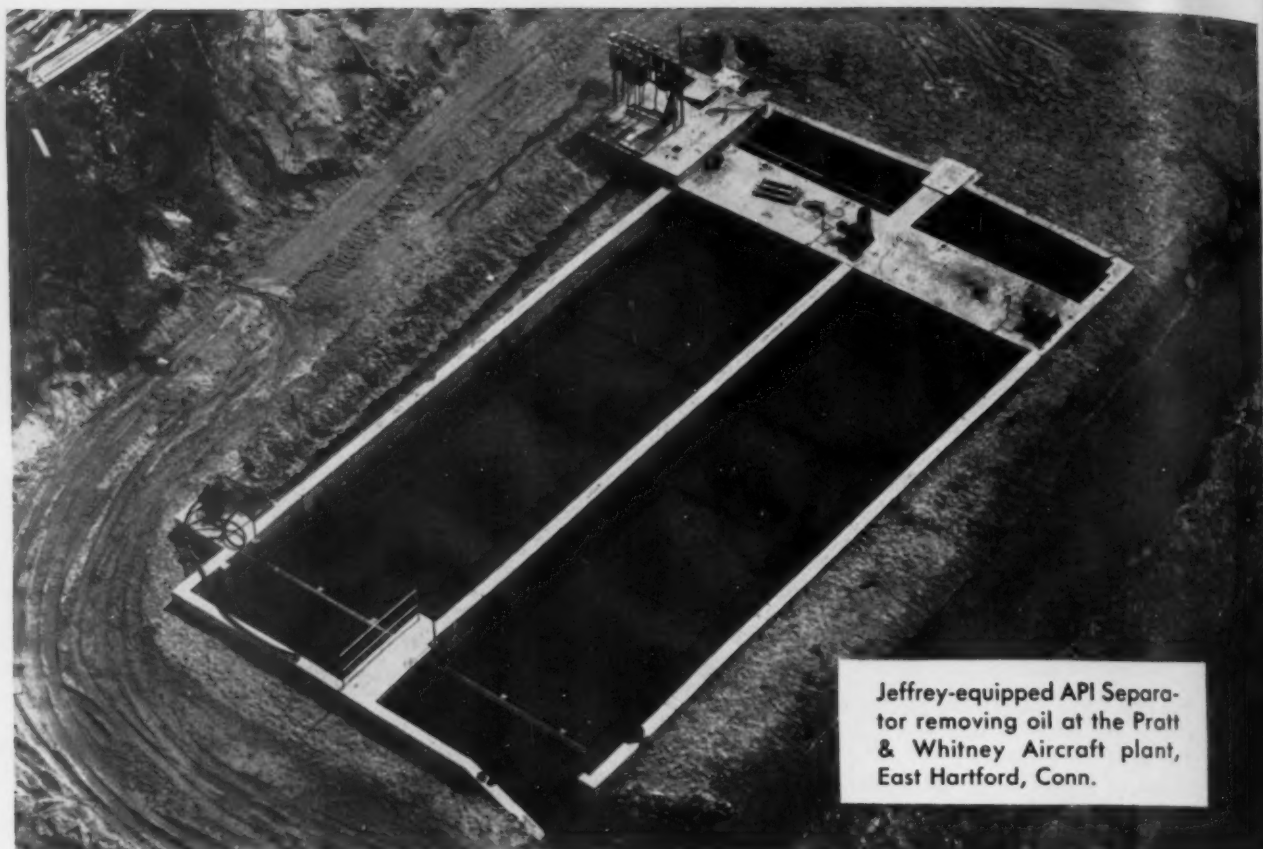
NEXT WEEK:

AUTOMATIC MOLDING CUTS FOUNDRY HANDLING

Manual handling of bulky flasks and finished molds is eliminated by a fully automatic molding machine recently installed by one auto company. The new unit produces engine block molds with high accuracy and uniformity. Automatic machine has a capacity of more than 200 half-molds per hour.

PHOSPHORIZED ANODES IMPROVE COPPER PLATE

Anodes of commercial copper, containing 0.02 to 0.03 pct phosphorous, have exceptionally good plating characteristics. They give freedom from anode sludge without bags or diaphragms. Deposits, of any desired thickness, are exceptionally smooth. The solution stays clear for long periods, maintenance is less.



Jeffrey-equipped API Separator removing oil at the Pratt & Whitney Aircraft plant, East Hartford, Conn.

JEFFREY has the answer to pollution problems

Are state or federal anti-pollution laws giving you headaches? Then call on Jeffrey Sanitary Engineers for practical relief. A Jeffrey-designed installation will neutralize your industrial wastes efficiently. Here's how:

CHEMICAL DOSING: Jeffrey WAYTROLS, Bin Check Valves and Vibrating Feeders assure continuous, automatic dosage.

MIXING: Jeffrey Flash Mixers, with turbine type impellers, mix chemicals thoroughly with wastes.

FLOCCULATION: Jeffrey FLOCTROLS coagulate particles and promote rapid settling.

SETTLING: Jeffrey automatic, continuous Sludge Collectors scrape deposit to sump at end where it is pumped out and de-watered or sent to lagoons.

Hundreds of industrial wastes treatment plants

throughout the nation are now Jeffrey-equipped. Scores of industries have found Jeffrey's wide engineering experience and broad line of proved equipment the best answer to pollution problems.

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Indexed in the Industrial Arts Index
and the Engineering Index.



Editorial:

What's the long pull outlook

IF we are going to scan the economic horizon beyond the immediate future we must eliminate a few fears. What we see depends upon our imagination, our willingness to keep our head out of the sand and our ability to interpret global events—and crises.

We have to get rid of the idea that we are going to have a serious depression soon or in the reasonably far future. We must admit that the communistic threat to world freedom is real and that until it is stopped in its tracks or is eliminated we will have painful problems with us at home and abroad.

We must not take the experts too literally. They too are human. Often their opinions are colored by family trouble, dyspepsia, child-hood impressions, inherited characteristics and plain cussedness. With this in mind let's take a look at the long pull:

Population: Growing much faster than predicted. Net gain 1940-50 was about 19 million. Net gain 1950-60 will top 29 million. Births in 1950-60 will run close to 38 million compared to 32 million in 1940-50 period. The expected slowup in births has not come.

Highways: No longer can we fool around with the highway ques-tion. Improvements, additions and new roads are long overdue. Eisenhower's \$50 billion plan may be on the low side when the facts are in. States and the government will get together soon for action.

Labor Saving: Trend in industry is for fast write offs on machinery to cut costs. It is coming with a bang. Same thing is happening in homes. Fifty pct of female workers are married. Surface hasn't been scratched in home appliance potential.

Building: Needed schools, hospitals and up-to-date office buildings plus housing will keep backlog high for some time.

Inflation: It's here. It will stay even though it's called "con-trolled." Defense spending guarantees it. Our fear that "controlled" deflation might turn into uncontrolled depression scares the day-lights out of our leaders. Most labor contracts have built in or implied inflation terms, i.e., cost of living raise and yearly "produc-tivity" increase.

Besides all this John Smith and wife are going to buy everything they can on the installment plan before they get too old to enjoy it.

Tom Campbell

EDITOR

August 5, 1954

7

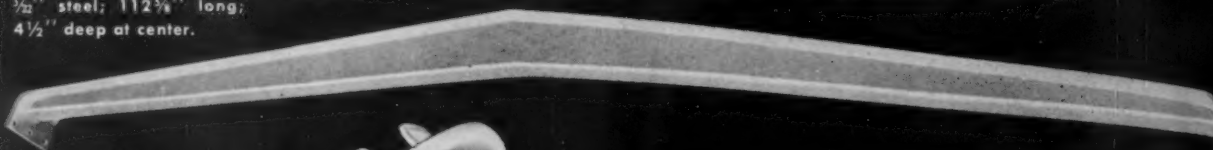
Transmission support cross member for automobile frame. Bolted, riveted and welded assembly.
21 1/4" long; 8" high; 4" wide.



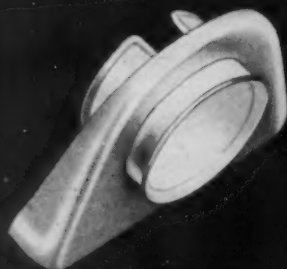
230 gallon pylon tank.
0.25" steel;
26.05" dia. at center;
153.82" long.



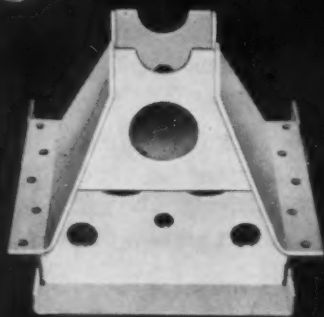
Box car roof carline.
3/16" steel; 112 1/4" long;
4 1/2" deep at center.



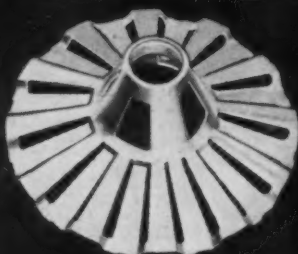
Shaft bracket.
.1345" steel;
8 1/8" long;
6 1/2" wide;
1 1/16" flange.



Welded bracket.
3/16" low alloy steel;
15 1/4" high; 12 3/4" wide; 11 1/4" deep.



Diffuser for commercial oil burner.
3/4" stainless steel;
11" dia.; 3 1/8" deep.



Deep drawn body.
.0747" steel;
6 1/2" deep; 11 1/16" dia.



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PARISH pressed metal parts for better products

dear editor:

Hydrogen Control

Sir:

In the July 15 issue, p. 57, an item appeared on improved control of hydrogen and inclusions in steels which has been reported through use of a plastic material.

Can you tell us who manufactures such plastic material so that we may get in touch directly? *P. P. JEFFERIS, Assistant to the President, Janney Cylinder Co., Holmsburg, Pa.*

The plastic material is manufactured by American Metallurgical Products Co., 3600 Forbes St., Pittsburgh.—Ed.

Radiography

Sir:

On p. 45 of your July 8 issue mention was made of the use of Sodium 24 for radiography of 12 in. thick steel. I know of an application where ability to radiograph welds in steel up to 11 or 12 inches thick with a portable source might be very important.

Can you furnish the name of the source of your information on the use of Sodium 24? *R. H. LAMBERT, Captain, USN, Inspector of Naval Material, Dept. of the Navy, Boston.*

Further information on the use of Sodium 24 for radiography may be obtained from Isotope Products, Ltd., Oakville, Ont.—Ed.

Semiconductor Materials

Sir:

The following item appeared on the Newsfront page of the July 1 issue:

"New semiconductor materials with high electrical conductivity and low thermoconductivity are being sought by a British research group for use in refrigeration. Using a long known, little used principle, a cooling effect of nearly 60°F has been produced by passing a current through the junction of two dissimilar metals. Silicon and germanium were used."

letters from readers

Can you supply further information regarding this research project or advise as to where such further information might be obtained? *P. K. RICE, Manager, Works Engineering Dept., Linde Air Products Co., New York.*

More details may be had from the General Electric Co., Ltd., Magnet House, Kingsway, London, England.—Ed.

Carbide Drilling

Sir:

Could we have your permission to reproduce the article "Carbide Drilling Speeds Removal of Tough Slag Deposits" by D. L. Tunsberg, which appeared in the July 8 issue of your magazine? *G. B. VARNER, Advertising Manager, Industrial Tools Div., Kennametal, Inc., Latrobe, Pa.*

Refractory Cement

Sir:

Will you please send me further information regarding refractory cement for aluminum furnaces mentioned in the Newsfront page of your July 1 issue.

Particularly we would like to know where this is obtainable. *A. W. BASON, General Electric Co., Bridgeport, Conn.*

Further information may be obtained from Electro Refractories & Abrasives Corp. 344 Delaware Ave., Buffalo 2, N. Y.—Ed.

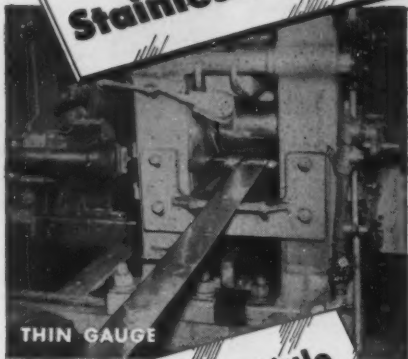
Plastic Pipe

Sir:

In reference to the item about plastic pipe used in salt wells in the Newsfront column of your July 1 issue, would it be possible to supply me with the following information: what type of plastic was this pipe, what was the wall thickness and what was the diameter? *D. B. CAMPBELL, Geo. D. Camp. Mexico, D. F.*

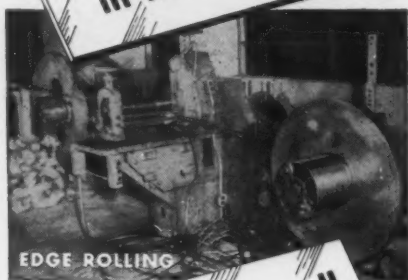
Write to Hooker Chemical Co., Niagara Falls, N. Y., for more details.—Ed.

ULBRICH
Stainless Steels



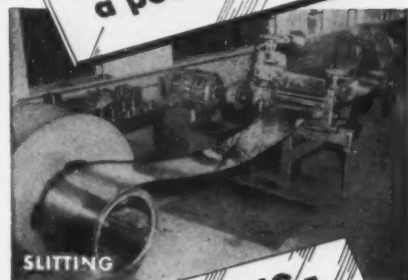
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Intermittent
Sprockets

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LimiTorque Valve Controls

fatigue cracks

New Look

With this issue you see a remarkable change in your ffj (favorite family journal). Look on page 11—Fatigue Cracks, page 53—News Section, page 145—Market Section, page 71—Interpretive Columns, page 87—Personnel Section, page 97—Technical. Heck, look at all of 'em. The editors have changed things all around.

New format. New layouts. New designs. New cuts. New artwork. And if you don't like it, new editors.

Their purpose is to contribute to the pleasure of the reader. In so doing the news and technical stories and all the rest is presented in more palatable form than previously. To be technical we have gone from a condensed type to an extended bold face type with letter-spacing of the heads.

Money (a lot of money), much sweat and weeks of time have gone into this tremendous effort. Specialists (type-doctors) were brought into play. By scientific analysis they told us what type is easiest to read, easier on the eyes, how much white space is best, what kind of layout will save your time.

—just one more step in the continuing IRON AGE program to make things better for you. We think she looks terrific.

Women's Page

Your ffj (favorite family journal) has a vast distaff following. Thousands of letters a day pour into us from the ladies asking for details on the newest gink for heat-treating or requests for reprints on powder metallurgy. *That stuff.*

From time to time we try to give them a little extra something, something to brighten them up a bit, get them out of themselves, away from those old furnaces and lathes. This time we tell them about a new summer hairdo that is simple and easy to care for. Much research has gone into this.

The little girl influence is the in-

by William M. Coffey

spiration for a new hair fashion, we have found out. Longer than the Italian Boy or the New Guinea cut, the American girl hairdo (that's the new summer hairdo) is fun and gay. The front hair is pulled back from the forehead (much like the old Custer Scalp look) and caught with a piece of tarred hemp, tied in a bow. (Can be obtained at any boatyard). Side and back hair is shaved to the bone to look fluffy. What's left is curled.

Puzzlers

We're going to admit it. Not that we aren't titillated (not in Webster) by all answers we receive, but it makes our day sunnier when we get old. G. Alsterlund's answers. Here's his to that crazy tower—princess—boy puzzler:

"The king must be first released, then the princess, then the page boy. The use of the last-in, first-out method has been approved by the U. S. Tax Dept.

"The sequence is as follows: chain, boy, princess, king. Now the king is out, the sequence is princess, boy, chain. The princess is the only one that rides with the chain in the basket, and that is when she returns as the king descends. At no time do two persons travel in the same basket trip."

New Puzzler

Sometime before noon on a certain day, snow began to fall and continued to fall at a constant rate. A snow plow starts to plow the snow at noon. The distance the snow plow traveled between noon and one o'clock pm was twice as far as the snow plow traveled between one o'clock pm and two o'clock pm. If the speed of the snow plow is inversely proportional to the depth of the snow, what time before noon did the snow start falling? Mr. H. M. Roberts gives us this one, and in this heat it's a good one.

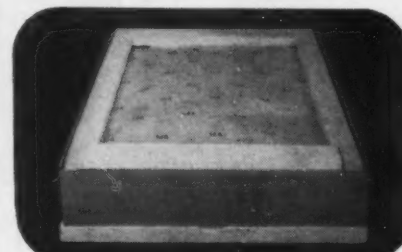
HOW MARVELLUM
vpi[®]

WRAP

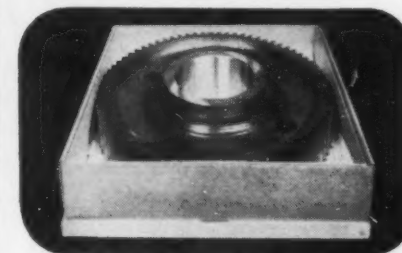
**Speeds Assembly
of Diesel-Electric
Locomotives**



Part arrives at assembly plant in steel-strapped skidded carton ready for stand-by storage.



Removal of carton top reveals rust-preventive VPI cover sheet held in place by top blocking.

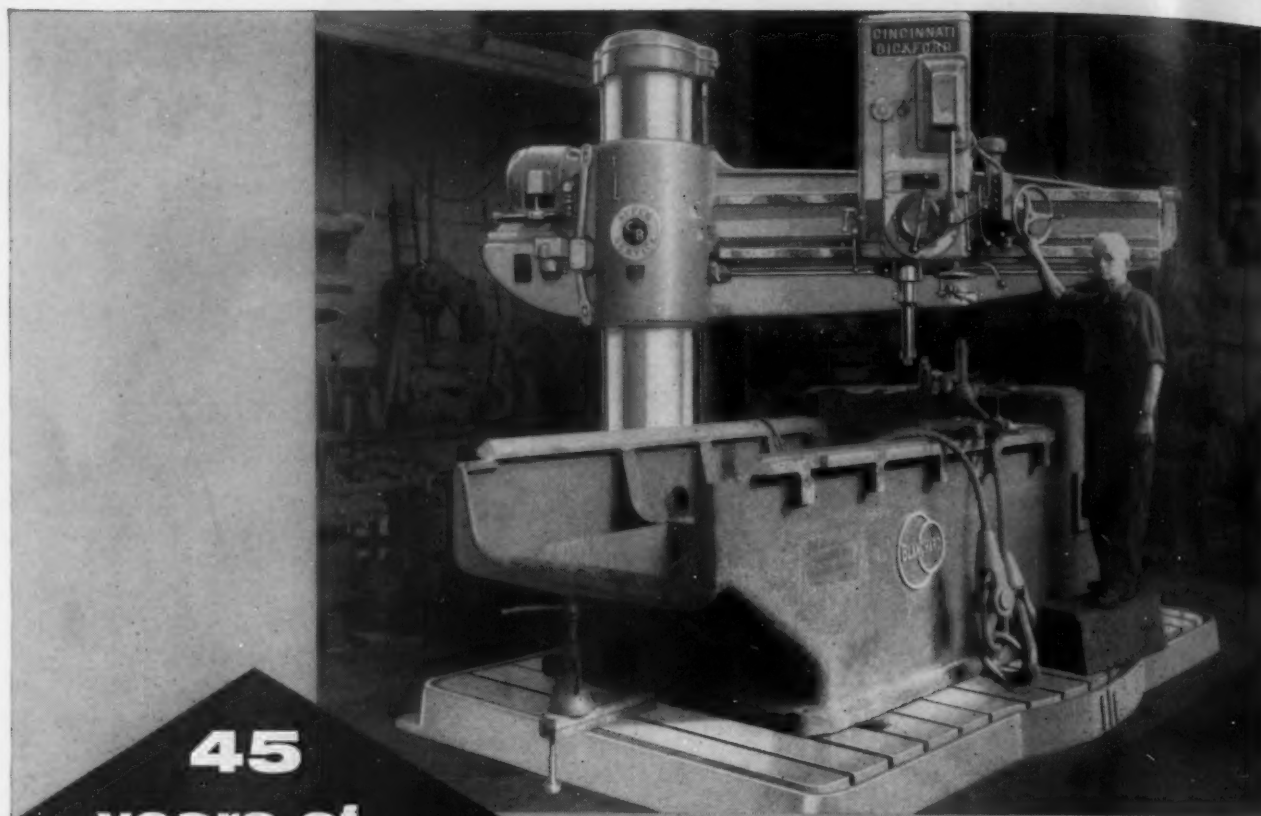


Gear, on bottom sheet of VPI paper, is clean, bright and ready for immediate installation. No messy, time-consuming degreasing delays the assembly of General Electric diesel-electric locomotives.

In shipment and storage, Marvellum VPI Wrap positively protects parts against rust. A special coating on the paper vaporizes and forms an invisible protective film around the item packed, preventing corrosion. Wherever prevention of rust is a factor, you can save time and money with VPI. To get all the facts about this revolutionary protective wrap, write for our fully descriptive booklet and generous VPI sample. Our technicians will be glad to discuss corrosion problems peculiar to your plant.

Marvellum VPI Wrap is made in compliance with Military Packaging Specification MIL-P-3420.

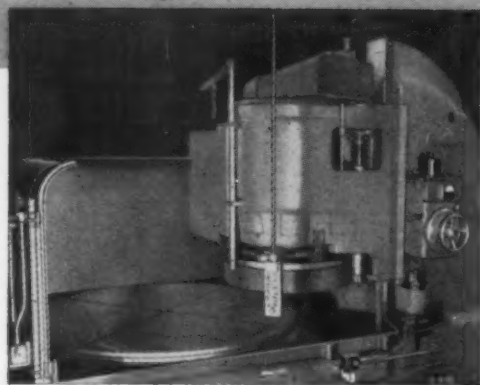
The MARVELLUM COMPANY
2 Appleton St., Holyoke, Mass.



**45
years of
experience
speaks**

"Well, if you don't buy a Cincinnati Bickford let me keep the one I have."

EMILE BROUILLARD



A close-up of 42-7284 Blanchard Surface Grinder.

Photos courtesy of the Blanchard Machine Company, Cambridge 39, Mass.

Extreme accuracy is required in drilling 12 holes in base of large Blanchard Surface Grinders.

Three of these holes are for 3" x 18" studs, which provide column adjustment, to required flatness accuracy of .0002" on an 84" diameter magnetic chuck. The diameter of the three bores for the column studs are held to $\pm .0005$ ". Time on these operations was reduced an hour with the installation of this large Cincinnati Bickford Drilling Machine. This operator has not had an accident in 45 years of operating Cincinnati Bickford Super Service Radials. Twelve machines have been installed here, for their safety, production accuracy and general satisfaction.

Write for Catalog R-29.

80 YEARS OF SERVICE

..... **CINCINNATI
BICKFORD**



RADIAL AND UPRIGHT DRILLING MACHINES

.....
THE CINCINNATI BICKFORD TOOL CO.
Cincinnati 9, Ohio, U.S.A.

The Iron Age Newsfront

Small Gas Turbines Create Own Market

Small gas turbines will tend to create their own market rather than replace piston engines in existing fields, some automen believe. Propulsion of small helicopters has been mentioned as a potential application.

Saves Time In Shipyards

Thirty-foot railroad rails, used as machine ways to straddle long cuts made by hydraulically driven milling machines in shipyards, have helped reduce setup time. Operators can make a 30-ft cut without moving the carriage rails for a new setup.

Foundry Processes Being Overhauled

Shell molding and greatly modified shell molding techniques designed for high volume production will be generally used in the auto industry, foundrymen believe. But count this for a certainty: All automobile foundry processes will be extensively overhauled.

Parts and Materials for Reactors

Peacetime power from nuclear reactors, coming fast, will require large amounts of commonly used materials both for the reactors and for auxiliary components. In planning ahead, remember that major mechanical and physical properties of many materials used in reactors are changed as a result of radiation.

Carbon Dioxide and Machinability

High rating in machinability goes to malleable iron, a recent study of malleable, nodular and gray cast irons showed. Now, further investigation shows malleable irons decarburized with carbon dioxide, in melting, have a higher machinability rating than those diluted with steel.

Tooling Is Simplified

A floating die system for reverse ejection of briquetted parts is used in an unusual powder

metal briquetting press recently developed. Adjustable oil pressure allows die to move downward after pressing the part so that briquette is exposed for ejection. This eliminates ejector plates, extra movement of punches.

If You Use Powdered Materials

Particle size distribution is a quality controlling factor in powder metallurgy, ceramics, and wherever powdered materials are used. More accurate control is now possible with the aid of a new analysis instrument. Tried successfully in several industries, the unit substantially reduces the time required for particle size distribution analysis.

Temperature Drop: 2000°F In Six Feet

A ceramic pouring tube that can stand up under extreme temperature changes has been developed for a new method of pressure casting carbon steel. Chief asset: High resistance to thermal shock. Temperature differential at opposite ends of the 6-ft tube is 2000°F. Molten steel is forced through the tube at 3000°F.

Complete Switch To Welded Wheels

At least one major automotive wheel supplier has now completed the switch from riveted to resistance welded wheels. Plans are for production of 100 pct welded wheels.

New Wells: Hope for Record Footage

With seamless and electric weld tube orders extending into September, oil country activity suggests good deliveries for the remainder of the year. Current hope is that new wells will hit an all-time high in 1954 in actual footage drilled.

High Strength Powder Metal Parts

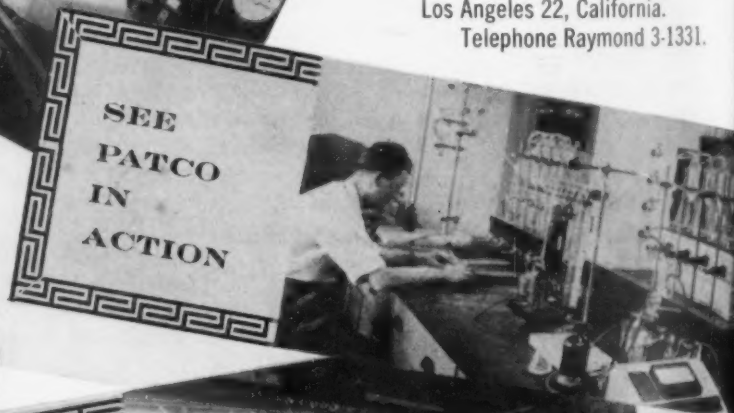
High strength powder metal parts with physical characteristics similar to wrought steels are now being produced. After molding and heat treating, parts made of one alloy have ultimate tensile strength of 115,000 psi, with hardness of RC 30.



PATCO INVITES YOU TO THE MOVIES

A twenty minute, sound, color motion picture has just been released by Pacific Tube Company, of Los Angeles. The film is a pleasant interesting education in steel tubing manufacturing. Animation drawings clearly show the tube reducing and drawing operations. The largest drawbench in the West is shown in action.

This film can be made available to your company or organization without charge. Write to Film Department, Pacific Tube Company, 5710 Smithway Street, Los Angeles 22, California. Telephone Raymond 3-1331.

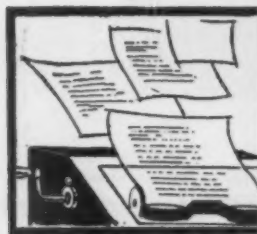


PACIFIC TUBE COMPANY
LOS ANGELES, CALIFORNIA
FOR SERVICE AND RELIABILITY

patco

Pacific Tube Company specializes in the manufacture of tubing from stainless, carbon and alloy steels. PATCO produces cold drawn seamless tubing, welded tubing, and cold drawn bars. Write for our catalog.





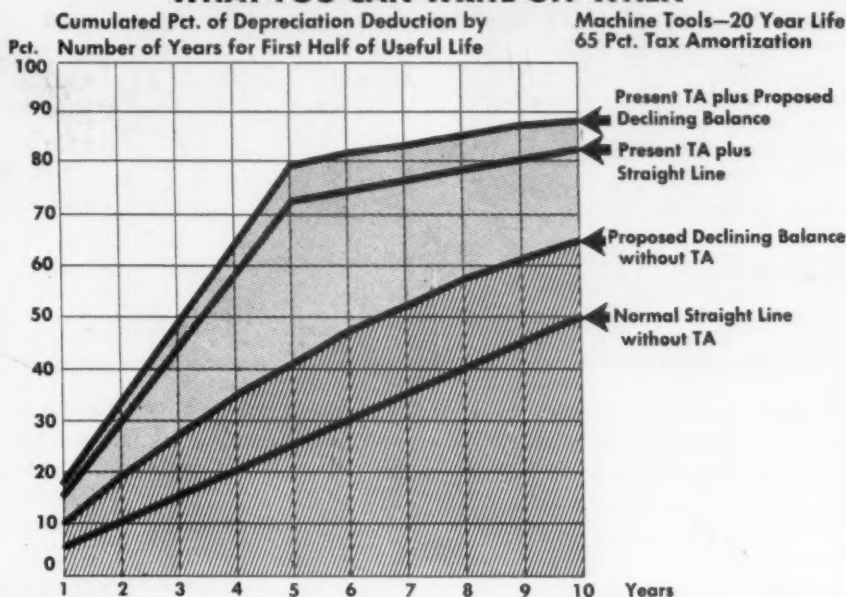
NEWS SECTION

Special Report

What New Tax Bill Means to You

Tax revision allows 67 pct writeoff in first half of estimated life of new plant or equipment . . . Former method allowed only 50 pct . . . Could save U. S. companies \$400 million in '54—By J. R. Whipple.

WHAT YOU CAN WRITE OFF WHEN



GRAPHIC COMPARISON shows the advantage of Office of Defense Mobilization tax amortization under Certificate of Necessity over both straight line and newly-authorized declining balance methods of depreciation in relation to the first half of a machine tool's estimated 20-year life.

straight-line method, \$1000 of the machine's cost may be deducted each year. This amounts to a depreciation rate of 10 pct per year with nothing left to be written off at the end of the 10-year period.

Under the declining balance method, a 20 pct tax deduction is allowed each year. In the first year \$2000 may be written off, at the end of the second \$1600 (20 pct of the \$8000 balance) and so on.

Comparison table on p. 54 shows that tax deduction under the declining balance system runs ahead of the straight-line write-off only through the fifth year of the machine tool's useful life.

Also, at the end of the 10-year period there would be an undepreciated balance of \$1074.

Because of this undepreciated balance problem the new tax bill makes it possible to switch to the straight-line method at any time during the life of the property. When this change is made, the straight-line deduction permitted is determined by the estimated remaining life of the property and the amount already written off.

Treasury Dept. predicts that if all eligible taxpayers take advantage of the declining balance tax writeoff, revenue loss to the government would amount to between

BUSINESS and industry will have an opportunity to save \$400 million in taxes this year through the more liberal depreciation write-off policy contained in the omnibus tax revision bill approved by Congress last week.

New bill's liberalized depreciation formula is not a giveaway program as some of its opponents have maintained. Nor does it increase the overall tax deduction that may be taken on new plant or equipment.

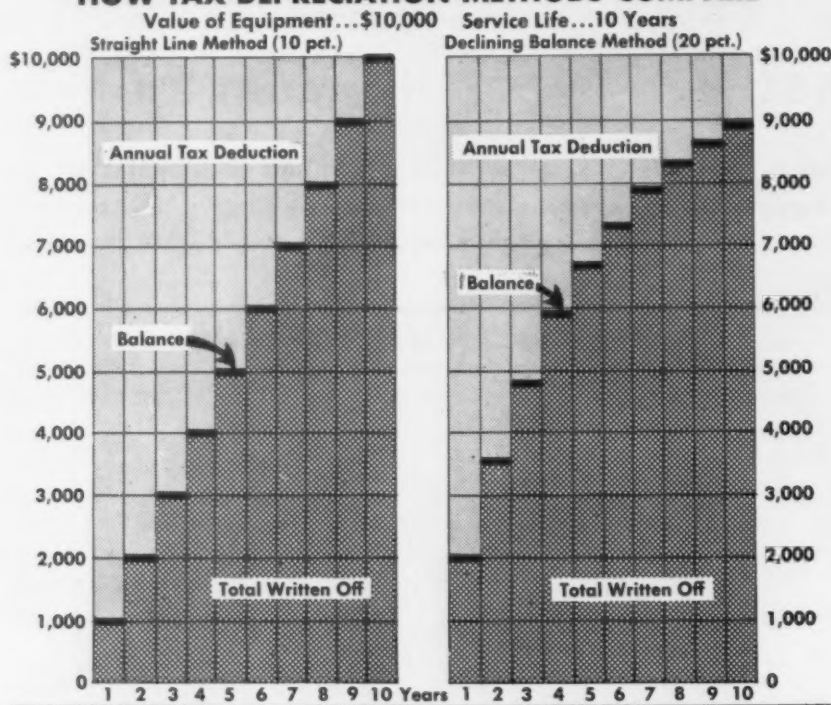
What it does do is to give taxpayers the option of depreciating capital assets more rapidly at the beginning, while reducing the amount that can be deducted later on. Treasury Dept. believes net effect of this plan will be to assist modernization, expand capacity, increase production, help produce higher standard of living.

In effect the tax revision provides a new way of slicing the old cake. Whether you take advantage of it depends on if it is to your benefit to recover more of the cost of plant and equipment early in its tax life and less later on, or whether it would be better to take uniform deduction throughout the useful life of the asset.

Under the new declining balance method, H.R. 8300 provides two-thirds writeoff during the first half of a machine's life. The straight-line method allows a maximum writeoff of only 50 pct during the same period.

In the case of a machine tool costing \$10,000 with a useful life of 10 years (as determined by Treasury Dept.), depreciation policies work out this way: Under the

HOW TAX DEPRECIATION METHODS COMPARE



\$375-\$400 million during 1954. This loss would be made up later as the permissible tax reduction declined. And some Treasury officials believe that in the long run it may even result in greater tax payments because of the anticipated increase in plant and equipment sales.

Expected to gain most from the more liberal depreciation policy are manufacturing and service businesses whose productive capital assets are short-lived or become obsolete very quickly because of new technological advances.

Manufacturers of this type of equipment are also expected to benefit through increased sales.

Other advantages of the accelerated depreciation policy pointed out by Senate Finance Committee Chairman Eugene Milliken R., Colo.: "By permitting capital investment to be recovered more rapidly while the prospects for income and the risks associated therewith can be more clearly foreseen, the existing tax barriers to new investment will be reduced.

"Furthermore the more rapid recovery of the cost of an investment will permit new investments to be financed by relatively short term loans. This is of special important to small business which is not likely to be in a position to secure long term loans."

Industries in which the easier depreciation policy should be of particular help are: machine tools, electronics, appliances, automotive parts, instruments, chemicals, transportation, radio and television manufacturers, construction equipment, plastics.

Business for which accelerated depreciation will be generally less

important are: railroad, steel, foundries, warehouses, utilities, income-producing real estate.

In these fields, assets have much longer tax lives as these examples from Treasury Dept.'s listing of estimated useful lives show: iron and steelmaking (buildings and machinery) 25 years; average industrial factory building, 40 years; warehouses and grain elevators, 50 years; railroads, freight cars, 28 years.

In such cases, straight line depreciation rate would run from 2 to 4 pct annually. Declining balance would raise writeoffs to 4 to 8 pct in the first year, but in the case of property with an estimated tax life of 40 years, annual depreciation writeoff during the last 24 years of the asset's estimated tax life would be less than the 2½ pct allowed under the straight line method.

Not All Gravy

By depreciating two-thirds of the cost of a steel mill in the first half of its tax life, management would commit itself to smaller tax deductions in future years, when tax rates may well be higher and writeoff advantages may be even more desirable than at present.

Where assets can be written off for tax purposes under Office of Defense Mobilization's Certificates of Necessity, declining balance depreciation offers comparatively little advantage.

Industries with heavy defense commitments such as aircraft and aluminum, permitted by ODM to write off 70 pct of a new facility in the first 5 years of its life, will find the accelerated depreciation provides only a minor additional incentive boost. (Chart on p. 53 illustrates the wide gap between the ODM tax amortization incentives and other methods.

Who Gains From Easier Depreciation:

- (1) Manufacturing and service businesses whose productive assets are short-lived or become obsolete very quickly because of new technological advances.
- (2) Specific industries that will benefit: machine tools, electronics, appliances, automotive parts, instruments, chemicals, transportation, radio and television manufacturers, construction equipment, plastics.

TAXES: No Help on Used Goods

Used equipment is not included in faster write-off provisions of new tax revision bill . . . Machinery dealers say it's discriminatory . . . But Treasury has strong case.

Contrary to general opinion, faster depreciation will not affect the automaker's basic problem of rapid obsolescence of tools and dies caused by frequent model changes. Here, the case for fast amortization is obvious so that Treasury Dept. long ago granted the industry equitable rates on new equipment necessitated by model changes.

The new law takes such special tax provisions into consideration by stating: "... (the) bill (is) not intended to preclude a taxpayer from basing his depreciation rates on circumstances and facts which necessitate a more rapid writeoff than will be permitted under the declining balance method."

In fact H.R. 8300 permits "any other method (of depreciation) so long as the accumulated depreciation allowances for a property at the end of each year do not exceed the allowances which would have resulted from the use of the declining balance method."

Tax Bill Limitations

Several important limitations on applications of declining balance depreciation were written into the new tax law. The first prohibits use of the declining balance write-off on assets with a useful life of 3 years or less.

Another provides that liberalized depreciation can apply only to new property.

On property constructed or purchased from the builder, by the taxpayer, rapid depreciation is available only on construction completed after Dec. 31, 1953. In case of property acquired after Dec. 31, 1953, the liberalized depreciation methods apply only to new property.

So far as business and industry are concerned, depreciation tax relief couldn't have come at a better time. While business is generally on the upgrade, competition is stiff and will continue to be so. And with labor costs continuing to rise firms are under more pressure than ever.

Answer to both these problems is increased productivity so the added incentive to buy new plant and equipment provided by the new depreciation tax revision comes at a very opportune time.

◆ **PRESIDENT Eisenhower's** omnibus tax revision bill passed by Congress last week was accepted without as much controversy as might have been expected.

Main area of argument was the provision in the bill designed to eliminate double taxation of corporate dividends.

Another less publicized objection arose over the bill's exclusion of used equipment from benefits of the accelerated depreciation writeoff provision.

Spearheads Fight

A strong plea for the inclusion of used equipment under the fast writeoff program was made by Machinery Dealers National Assn., an organization representing more than 200 firms who buy, rebuild and sell a large percentage of the metalworking industry's production and machine tools.

MDNA's main point, brought up before the Senate Finance Committee, was that limiting accelerated depreciation to new equipment would work a hardship against nation's small and medium-sized firms that rely on used equipment to carry the load of much of their productive work.

The association argued that smaller producers need rapid recovery on capital investments in productive assets as much or more than larger corporations.

MDNA's view is that by prohibiting declining balance tax deductions on used equipment the bill discriminates against small firms and also constitutes an automatic devaluation of all used capital assets in possession of users and dealers alike.

Treasury officials and members of the Congressional tax commit-

tee staffs believe, however, that the transitional tax revenue loss would be too great if all used equipment were subject to the double declining depreciation writeoff.

They also believe fast writeoffs for new tools will promote rapid upgrading by providing incentive for both large and small firms to replace existing production machinery with more up-to-date equipment.

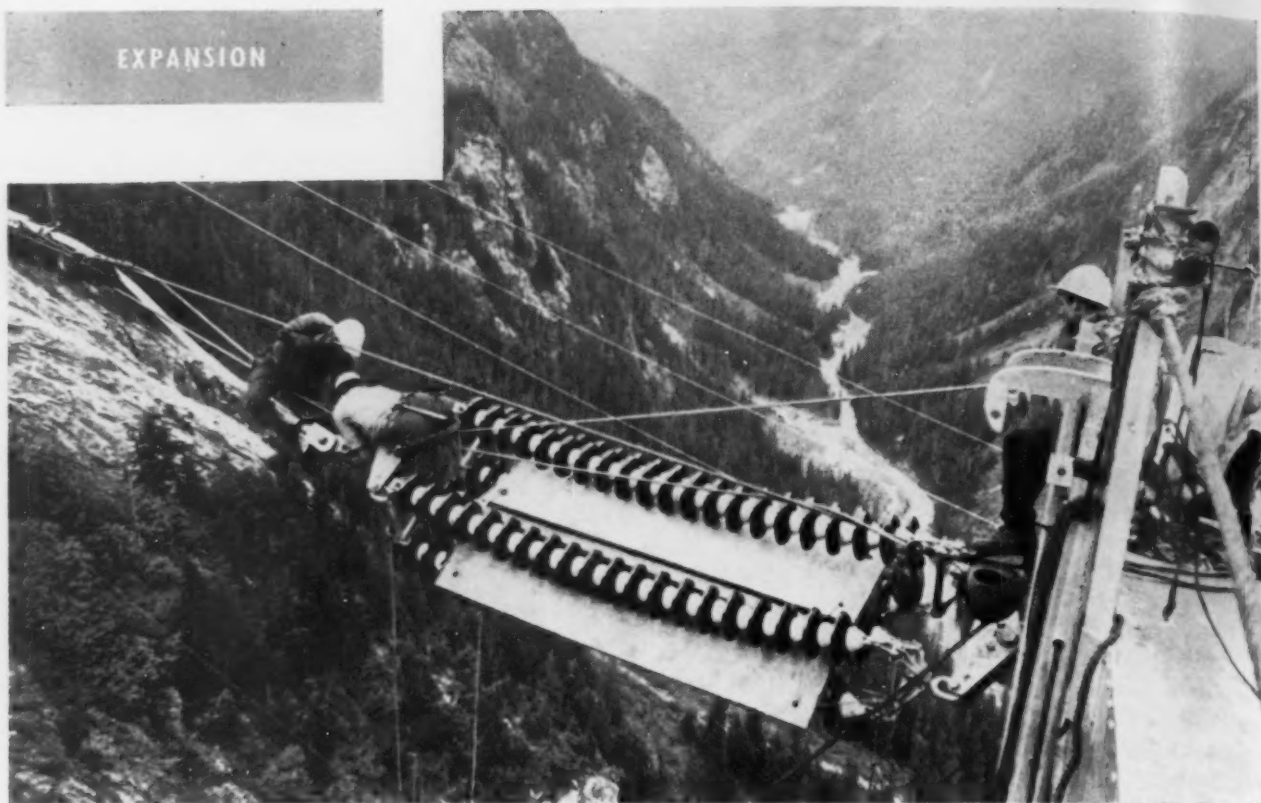
This, Treasury people say, would stimulate production of needed new tools and make many more excellent used machines available for sale. Increase in supply of good used machinery would reduce prices and eliminate the theoretical disadvantage imposed by exclusion of the used machinery from tax writeoff benefits.

Officials in Dept. of Commerce sided with the used machinery industry and plumped long and diligently for liberalized depreciation for all used assets. Commerce people stressed the general incentive to small business resulting from faster capital recovery methods.

Treasury Speaks Up

However, Treasury Dept. was adamant, summed up its case in the text of the bill itself:

"The application of the new methods to used property might artificially encourage transfers and exchanges of partially depreciated assets motivated only by tax considerations. The stimulus to investment through liberalized depreciation is most important with respect to creation of new assets. Moreover, the reality of faster depreciation in the early years is generally greater in the case of new than used property."



STRINGING 48-mile aluminum transmission line through mountains between Kemano and Kitimat.

KITIMAT: Pour First Ingot

Ceremonies Tuesday climaxed 3 years work, investment to date of \$275 million . . . Present smelter capacity 91,500 tons annually . . . Can expand to 550,000 tons.

◆ FIRST aluminum ingot was poured last Tuesday at Aluminum Co. of Canada's new Kitimat, B.C., plant.

Behind that bald sentence lies 3 years of grueling work by 10,000 men, an investment of \$275 million to date, and one of the great engineering achievements in North America.

The vast development will ultimately have a hydroelectric capacity of 2.24 million hp to supply an aluminum smelter of 550,000 tons annual capacity. Facilities now completed and in operation use a hydroelectric capacity of 420,000 hp and will produce 91,500 annual tons of metal.

To make the project possible, it was necessary first to move over 6 million tons of rock and clay into the canyon of the Nechako River to form Kenney Dam, one of the largest earth-filled dams in the world. Waters impounded by the dam are backed up into a lake

and reservoir system 150 miles long.

One of the toughest parts of the job was a 10-mile tunnel, 25 ft in diameter, which carries the water through the coastal mountain range to the underground Kemano powerhouse. Hard rock miners, tunneling in opposite directions, met inside the mountain last December.

Inside the powerhouse, 1/4-mile within the mountain, three 140,000-hp turbines started to turn July 15, driven by water falling 2600 ft through penstocks from the tunnel above. The 50-mile aluminum transmission line, which at one point crosses a 5000-ft mountain pass, has been carrying power to the smelter for the last 3 weeks to bake in the pots.

The newly built seaport at Kitimat, adjacent to the smelter, has been steadily receiving the various materials such as petroleum coke, pitch, cryolite and alumina consumed in the smelter. Alcan's ships



FIRST SECTION of Kitimat aluminum smelter nears completion.



EARLY EXCAVATION of underground powerhouse at Kemano.



LOWERING generator rotor—one of three—into powerhouse at Kemano.

are bringing alumina on a regular schedule through the Panama Canal from the company's Jamaica bauxite and alumina facilities. Alcan has so far invested about \$30 million in Jamaica, mainly to support the Kitimat smelter. First shipments of primary aluminum ingot will leave Kitimat shortly.

At Kitimat, peopled only by Indians until 3 years ago a modern town is going up. A municipal administration, independent of Alcan, is operating schools and bringing into existence local services such as roads, sewers and fire protection.

Although aluminum smelting re-

quires fewer workers per horsepower of energy used than almost any other industry, about 1000 employees will operate the smelter in the initial stages—making an estimated total population of 6000. Townsite plans call for a new city of 50,000 when aluminum demand justifies this growth.

A 48-mile rail link from Kitimat to the transcontinental line of Canadian National Ry. will be finished this year. During construction all materials and \$25 million worth of equipment were brought in by boat or roads through the wilderness. Men and materials for

the high transmission lines were supplied by a fleet of helicopters.

Alcan's present production of aluminum in Canada, now centered in Quebec, runs about 550,000 tons annually, or roughly one-quarter of the world supply. About 85 pct is exported to world markets, with the U. S. and Great Britain taking the largest amount.

Alcoa and Kaiser Aluminum have contracted to take 600,000 and 186,000 tons respectively from Alcan during the period 1953-1958. Another 110,000 tons is being reserved for non-integrated fabricators in this country.



MAIN TUNNEL meets construction adit during building.



FIRST ALUMINA from Jamaica arrives at Kitimat.

August 5, 1954

Another Cleveland Design to Speed Production!

CLEVELAND NUT TAPPING MACHINE



OPERATION: Core drill
and tap cast iron nuts $\frac{5}{8}$ "
through $1\frac{1}{2}$ "



**Produces 1020— $\frac{7}{8}$ "—9 Pitch Cast
Iron Nuts per hour @ 100% Efficiency**

DESCRIPTION: A vertical F-2 type Cleveland Heavy Duty Machine with eight spindle multiple head and a double slide four track feeder. The feeder fixture has a double slide mounted on hardened and ground slide bars to slide back approximately $3\frac{1}{2}$ " picking up a new part at end of each four tracks and at the same time picking up the drilled part at the drill position; then to slide forward to a fixed position and hold the parts at drill and tap position; at the same time the finished parts will be discharged onto a delivery chute at the rear of the tap spindles. The operator loads the nuts from a large tray in front of machine into magazine.



Send for
your copy
of this
Guide

Write today for Catalog No. 1A-84

CLEVELAND

tapping machine co.

A Subsidiary of AUTOMATIC STEEL PRODUCTS, INC. • CANTON 6, OHIO



TRADE

Tariffs:

**Upped on watches to protect
skilled labor source.**

President Eisenhower, in an action aimed at insuring a domestic source of precision parts and equipment in wartime has granted a 50 pct hike in the duty on imported watches.

Basis of the Eisenhower action was the threat that the failing American watch industry—chief domestic source of precision skills necessary to all industry—would die altogether unless it could be assured an adequate income. Industry generally, worried about its source of precision equipment in time of full mobilization, hails the decision.

The new tariff schedule, which went into effect on imports leaving foreign ports after July 28, will jump tariffs by as much as \$1.40 a unit. Excluded from the order are movements having more than 17 jewels, adjustments, parts, and loose jewels. The order brings import duties generally back to 1930 levels.

Have Essential Skills

The President's action follows recommendations by the U. S. Tariff Commission and came on the heels of a report by the Senate Armed Force Committee that the skills of the domestic watch industry are "essential" to national defense.

Spokesmen for the Swiss watch-making industry have attacked the action as a "contradiction of the principle of freedom of trade so consistently advocated by the American government," and threaten to retaliate by hiking duties on imported American products. Automobiles, permitted to enter Switzerland duty free, now face a possible new tax if the Swiss carry out their threat.

The President's action is important to other domestic industries as well as foreign governments. Lead and zinc producers, whose bid for higher tariffs is still before the President, are especially cheered by his action.

♦ GREATER efficiency in the steel industry is paying off handsomely where it counts most—on company balance sheets.

Although steel production in the first half of 1954 was 24 pct less than the first half of 1953, the industry's earnings declined only 15.7 pct.

And, while production in second quarter of 1954 was 2.2 pct less than first quarter, earnings in the second quarter were actually 15.7 pct higher.

The steel industry profits picture is obtained from an IRON AGE compilation of earnings statements of 20 companies accounting for more than four-fifths of the industry's ingot capacity.

Better Than Expected

The 20 companies reported net profits totalling \$268.8 million for the first half of 1954, compared to \$319.0 million for the first half of 1953, a decline of \$50.2 million.

They reported second quarter 1954 earnings totaling \$140.9 million, compared to \$121.7 million for the first quarter of this year, a gain of \$19.2 million.

The favorable financial reports confirm earlier predictions by THE IRON AGE that earnings in the steel industry would hold up well in spite of substantially lower production. But the good profits picture will undoubtedly come as a surprise to some who had insisted that steel business had gone to pot.

Comparison with 1953 is especially significant because 1953 was the second best year (profit-wise) in the history of the industry, being only 4 pct under the record year, 1950.

Contrary to common belief, elimination of the excess profits tax had little to do with the industry's favorable financial results.

Income Taxes Down

Officials of both U. S. Steel Corp. and Bethlehem Steel Corp. said their earnings would not have been affected by the tax if it still applied. While most company officials didn't comment on this point, it is believed that with

few exceptions the same situation would hold true for the rest of the industry.

Nevertheless, estimated federal income taxes were drastically lower. Here are a few examples:

Federal Income Taxes (000 omitted)

Company	First Half '54	First Half '53
U. S. Steel	\$94,000	\$187,000
Bethlehem	56,000	97,200
Jones & Laughlin	8,103	17,558
Youngstown		
S & T	8,644	15,573
Inland	21,493	21,163

On an individual basis operating results of the 20 companies

varied widely. Two of the companies, Armco Steel Corp. and Inland Steel Corp., actually earned more in the first half of 1954 than they did in the similar period last year. And one company, which had shown earnings for the first half of 1953, operated in the red the first half of this year.

Profit Margins Good

In spite of much lower sales volume this year, profit margins of most firms held surprisingly well, several firms actually increased their profit margins.

For example, U. S. Steel reported for the second quarter of this year a return of 5.8 pct of sales. For the first half of this year income was 5.6 pct of sales,

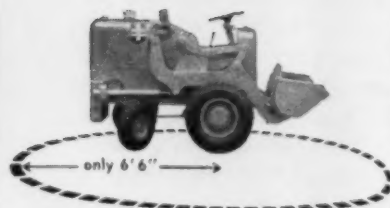
Steel Company Earnings

Company	Second Quarter '54	First Quarter '54	First Half '54	First Half '53
U. S. Steel	\$49,020,738	\$44,830,376	\$93,851,114	\$105,016,764
Bethlehem	30,755,412	27,802,938	58,558,350	59,495,136
Republic Steel	13,712,933	11,079,012	24,791,945	28,710,524
Jones & Laughlin	6,326,000	5,821,000	12,147,000	16,363,000
National Steel	6,605,123	6,420,225	13,025,348	24,074,732
Youngstown Sheet & Tube	6,081,216	2,989,478	9,070,694	14,944,206
Armco Steel	9,863,891	9,137,226	19,001,117	16,078,533
Inland Steel	9,954,419	9,463,250	19,417,669	15,677,521
Colorado Fuel & Iron	1,415,768	771,456	*7,051,729	8,031,224
Wheeling Steel	3,247,638	1,135,386	4,383,024	7,055,648
Sharon Steel	573,546	70,716	644,262	4,100,967
Crucible Steel	782,470	529,925	1,312,395	3,922,470
Pittsburgh Steel	518,023	199,150	.....	3,826,612
Allegheny Steel	828,221	1,063,450	1,891,671	4,261,645
Lukens Steel	.....	.....	1,735,041‡	3,207,126‡
Detroit Steel	329,763	237,980	567,743	3,499,864
Alan Wood	262,107	183,869	445,976	1,554,318
Rotary Electric	448,664	516,202	964,866	1,518,182
Continental Steel	579,664	318,217	897,881	887,687
Midvale Co.	.....	.....	212,759	614,183

* Year, June 30

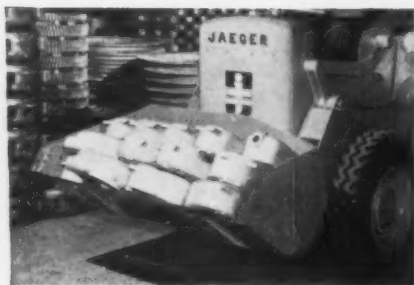
‡ Three-quarters Fiscal Year July 3

Italics denote net loss



5" shorter turning radius (only 6'6") and faster speeds up to 13.88 mph in reverse, 7.66 forward.

MOVE HEAVIER LOADS . . . TRAVEL FASTER . . . TURN SHORTER, QUICKER . . . DUMP HIGHER AND FARTHER*



20% more lifting capacity (1200 lbs.).



Low level bucket tilt-back permits full bucket loading, better carrying.



Higher dumping clearance of 4'6" under lip; 6'8" under hinge. Longer reach of 27".

Latest Jaeger 12 cu. ft. Auto-Scoop speeds one-man handling of bulk material

To help you cut the cost of bulk material handling, here's a scoop loader that's been developed *specifically* for most efficient operation. The Jaeger Auto-Scoop brings you greater power, speed and maneuverability to get more work done.

Bigger lifting capacity helps you handle heavier loads. Shortest turning radius speeds work in narrow aisles, box cars, cramped quarters. Highest dumping clearance and longer reach give greater range of load placement. Faster speeds, both forward and reverse, cut maneuvering and travel time. Independent forward-reverse control permits instant changes in direction, quick get-away.

Boom arms crowd the bucket forward as it rises — provide fast digging, full bites. Front driving wheels are at the fulcrum of the load . . . heavy loads help move themselves by increasing tractive power. Power tilt-back enables operator to crowd into material and flip bucket back before hoisting, insures a full load, and makes possible lower bucket level position for better carrying. Simplicity and ease of control, and effortless hydraulic functioning, encourage faster operation.

For complete facts, send for Catalog L12-4 and name of distributor who sells and services the Jaeger Auto-Scoop in your city.

* Based on comparisons with well-known scoop loaders now in the field.



For bigger work, 1 cu. yd. model, with torque converter and power steering, handles loads to 5,000 lbs. 2-wheel or 4-wheel drive.

The Jaeger Machine Company, 610 Dublin Avenue, Columbus 16, Ohio

JAEGER LOAD-PLUS *auto-scoop*

AIR COMPRESSORS • PUMPS • MIXERS • PAVING MACHINES

Distributors throughout U.S. and Canada and Principal Cities of the World

and for the first half of 1953 it was 5.5 pct.

Bethlehem's reported income for the second quarter of this year was 7 pct of sales, compared to 6.2 pct for the first quarter of this year, and 6.4 pct for the entire year 1953.

Favorable earnings in spite of lower production were generally attributed to greater efficiency.

New equipment installed is faster and better. When business dipped the older, slower, less efficient equipment was first to be idled.

The outlook for steel in the second half of this year is favorable. Although steel companies enter the period with order backlogs shrunken, it is expected they will be able to obtain a volume of business at least equal to the first half. Earnings should fare equally well.

See Fall Pickup

Benjamin F. Fairless, chairman of U. S. Steel, said he expects his company to operate at an average of 70 to 75 pct of rated capacity during the second half. U. S. Steel operations averaged 80.8 pct of rated capacity during the first quarter of this year, compared to 70.7 during the second quarter. The company is currently operating at 65 pct of capacity.

Mr. Fairless said he expects a pickup in steel business about September, but he cautioned that it would likely be gentle and gradual, rather than sharp. He expects steel orders for new auto models to show up in late August or early September. He said a pickup in business would make many consumer inventories look inadequate.

Eugene G. Grace, chairman of Bethlehem Steel, is not quite so optimistic for the third quarter; he believes his company will operate under 70 pct of rated capacity. But he does believe there will be some pickup in the fourth quarter.

Bethlehem operated at 73.3 pct of capacity in the second quarter, compared to 77.7 pct of capacity in the first quarter of this year. The company is currently operating at 66 pct of rated capacity.

MANAGEMENT

STEEL: Confirm Merger Talks

**Grace, Mauthe reveal discussions are going on . . .
But no agreement yet . . . Many details still to be worked
out . . . Talk to owners later—By W. V. Packard.**

◆ EUGENE G. GRACE, Chairman Bethlehem Steel Corp., last week confirmed persistent rumor that his company has been conducting merger talks with Youngstown Sheet & Tube Co. (THE IRON AGE, July 29, 1954, p. 57.)

Admission was made at a press conference held in New York last Thursday in conjunction with the company's second quarter financial report.

"We are not yet at a point to divulge details of our discussions," he added. "But we wouldn't be having these discussions if we didn't have something in mind to find the basis for doing the job."

Bethlehem-Youngstown Only

Mr. Grace said he was confirming the rumor because it had become so well established, and it was obvious from activity in the stock market that something was being discussed.

When asked about possible advantages to both companies of proposed merger, he said: "We are not addressing ourselves to

our stockholders; when the time is ready we will take the whole story to them. It is not proper for me to indicate at this time that this (merger) may or may not happen—as you well know it may not."

Mr. Grace said no other company is involved in the merger discussions: "As far as we are concerned the talks concern only ourselves and Youngstown."

Idea Not New

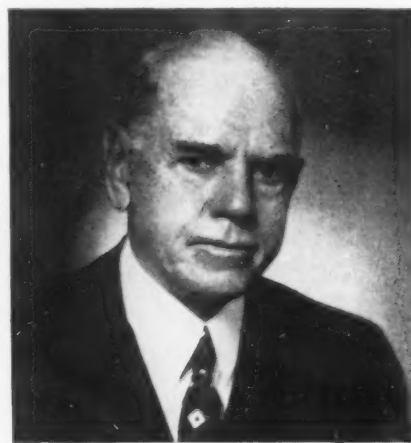
Confirmation of merger talks also came from J. L. Mauthe, president, Youngstown Sheet & Tube, who issued the following statement:

"There have been discussions between the officials of Youngstown Sheet & Tube Co. and Bethlehem Steel Corp. with respect to a consolidation. No agreement has been reached, as there are a great many details yet to be discussed."

Merger discussions between the two companies are old hat in the trade. They started as long ago as 1930. Since then, from time to



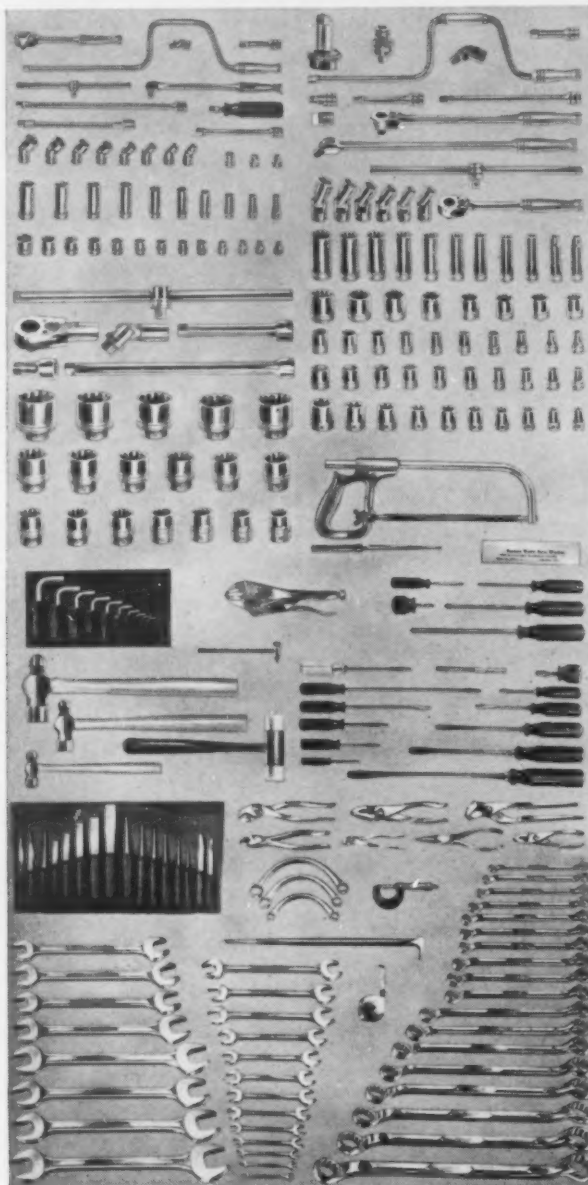
J. L. Mauthe
Pres. Youngstown Sheet & Tube



Eugene G. Grace
Chairman Bethlehem Steel Corp.

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5242 GS INDUSTRIAL WRENCH SET

This complete industrial tool set is planned for fastest, most efficient machinery maintenance and repair. Wrenches include every standard size from 1/4" to 2 3/8", in types to speed every maintenance operation. Available in carry-chests or roll-cabs which transport complete set from crib to job—eliminates time wasting "tool trips"—increases the efficiency of your maintenance department. Phone the nearest Snap-on factory branch listed here. For free catalog of 4000 Snap-on hand and bench tools, write

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Milwaukee, Wis., WEst 3-3116
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New Orleans, La., RAymond 2418
New York, N.Y., TULip 2-6868
Oklahoma City, Okla., FOREst 5-4975
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Snap-on Tools
THE CHOICE OF BETTER MECHANICS

MANAGEMENT

time, the rumor mill has run overtime with little to show.

When talks were first held production facilities of the two firms were more complimentary than competitive. But subsequent expansion programs have resulted in broadening product ranges until both companies make more of the same products.

Principal advantage of merger now would appear to be geographic. Bethlehem's production facilities are in the East and on the West Coast, while Sheet & Tube facilities are located in the Pittsburgh-Youngstown and Chicago areas.

NLRB Rules on Layoffs

All employers of a group bargaining unit may lay off their union workers when the union strikes against one company of the unit, National Labor Relations Board has ruled.

The board's 4-1 decision came in a case involving an AFL truck drivers' union and eight linen supply companies in the Buffalo area. The union struck against one of the companies, and the other seven laid off their drivers.

NLRB ruled that the firms were conducting a "defensive" and not a "retaliatory" action in closing their plants since the threat of a strike against all eight employers was implicit. The companies bargained together with the union for 13 years through an employer association.

Lakes Steel Slowdown

Great Lakes Steel Corp. has shut down five of its 17 openhearth furnaces because of a decline in automotive orders.

To minimize unemployment among its 10,500 workers, the firm plans to institute a 4-day week where plant schedules permit.

About 400 workers were immediately affected by reshuffling of job assignments or laid off briefly during the changeover.

Great Lakes said the 4-day week is a temporary measure, but is unable to predict when the order situation will enable resumption of full work schedules.

♦ **FOURTH** quarter tube prospects were a gamblers' market last week. But a mild pickup in seamless, adding new life to an already healthy market, seemed to deny earlier rumors from the oil country that demand there would sink in the latter part of 1954.

Men within the industry can give you odds either way. Said a purchasing agent for an oil country supply house, "the petroleum industry has a surplus of gasoline already. We're well satisfied with our current business. But our inventories will have to be cut in the fall quarter. I'll bet it's a 42,000 well year." (1953 was a 49,000 well year.)

Drilling Beats Line

A purchasing agent for a major producer of petroleum products: "We'll spend as much money on expansion this year as we have in the past. Admittedly, we'll cut back on refinery expansion and shift a portion of those funds to sales, but no matter how we cut the pie, it's still the same size pie."

Opinion boiled down to this: Seamless and electric weld, the material used in drilling operations, is holding very well though mill backlogs are sinking. Line pipe, the heavy welded 24-30 in. diameter pipe that is built up from plate, continues falling. Despite at least three proposed pipe lines in 22 in. to 30 in. diam and over 1000 miles long each, as well as many others of shorter length, proposals don't buy pipe. Until these orders become firm, the current slackening will continue.

Drilling Will Ease

Carbon steel shipments confirm the disparity between line pipe and oil country goods. Oil country goods shipments rose from 774,155 net tons in the first 5 months of '53 to 934,209 tons in the first 5 months of '54.

Line pipe shipments slipped from 1,362,795 net tons in the first 5 months of '53 to 1,210,210 tons in the first 5 months of '54. While the drop isn't steep, reports from plate producers suggest that the trend will continue through the remainder of the year.

The oil country rise directly reflects first-half 1954 drillings.

STEEL: Oil Goods Boom

Outlook for drilling products better than for line pipe . . . Expect alltime record in feet drilled this year . . . Mills whittle backlogs—By K. W. Bennett.

Drillers moved 5 pct ahead of first half 1953 this year, and are expected to put in 213 million ft of hole in '54 as compared with a record to date of 200 million ft of hole in any given year. Drillers put in more drilling per rig than ever before, dug the average well a little deeper.

New drilling in second half will drop below first half by 20 to 30 pct, it is estimated.

Some Still Short

At present, in the steel these men use, N-80 continues a hard-to-get item. Seamless tube and electric weld in carbon can be obtained on 4-6 wks delivery, though electric weld has tightened slightly in the past 30 days. Demand for seamless and electric-weld in the larger sizes hasn't been good recently, one supplier reports, but in the 4-12 in. range business is solid. In this size range, mills report

2 weeks delivery. He is making his plans for inventory accordingly. Some second quarter steel (for consumers who still order by the quarter) is still undelivered, but by the middle of the third quarter it's believed all steel coming in to the consumer will be on third quarter orders.

A number of hold-orders or cancellations in July hacked away a portion of the mills' backlogs. A shrinking backlog would account for speedier mill deliveries in late third and fourth quarter 1954. It isn't that the business is bad. With 25,904 wells drilled in first-half 1954, there are well considered estimates that 1954 will be a 50,000-plus year, with stronger wild-cat activity generally expected in the second half of the year.

Can't Deny

Even the pessimists confess that business is good, very good. And

Oil Country Goods, Line Pipe Shipments

	1953		1954	
	Oil Ctry Goods	Line Pipe	Oil Ctry Goods	Line Pipe
Jan.	148,439	261,754	193,021	197,414
Feb.	148,843	275,775	177,065	244,475
Mar.	160,756	322,176	190,268	266,147
April	166,505	318,781	193,325	285,177
May	149,612	284,309	180,530	256,997
TOTALS	774,155	1,362,795	934,209	1,210,210

booking into September at present, though small spot tonnages have been made available for earlier delivery.

Business Booms Along

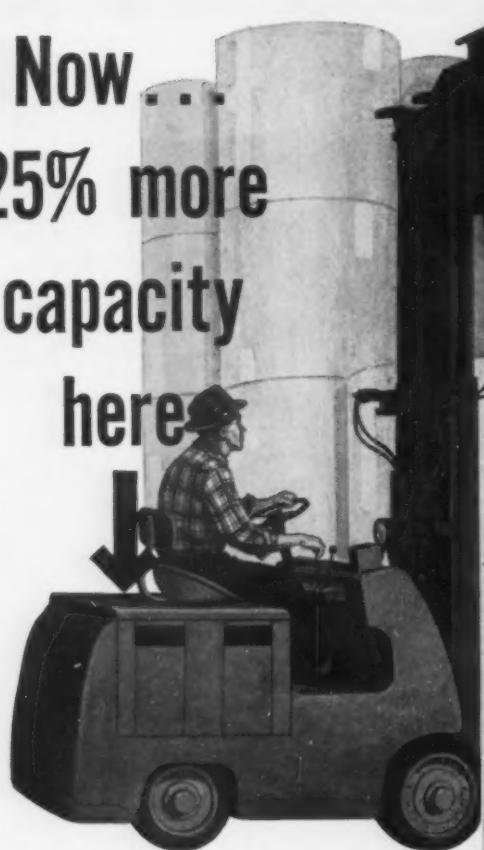
Oil country jobbers are counting on considerably shorter deliveries of pipe and tube in fourth quarter. One jobber is betting he'll be getting pipe, as he now gets plate, on

the statistics belie their pessimism. Completion of new oil wells were running 1000 per week at mid-July, and the year's total was 28,065 new wells as compared with 25,235 wells sunk by oil men in the same period last year.

The backlogs are going, but there's still plenty of oil country business.

news for industrial truck owners!

Now ...
25% more
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...with the New EDISON
"MC" type Battery!

Specifically designed to provide more power for modern driver-ride, sit-down fork trucks, this newest EDISON battery development provides 25% more capacity than ever before available in nickel-iron-alkaline batteries ... to suit the limited battery compartments of such industrial trucks. Extra power too, for operating various hydraulic devices which speed handling in plants and warehouses.

Besides this unusual space-capacity ratio, the new "MC" offers all

the profitable features typical of EDISON Nickel-Iron-Alkaline Storage Batteries: steel plates and cell containers for rugged, long-life service—electrical characteristics that assure foolproof operation, and outstanding dependability.

And like all EDISON batteries, the new "MC" is designed and built to give more than twice the performance life of other type batteries. Be sure to investigate this new EDISON development today!

Most dependable power...
lowest over-all cost
you get both with an EDISON



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EDISON ALSO MAKES THE FAMOUS "V.P." VOICEWRITER AND THE TELEVOICE SYSTEM

GOVERNMENT

Census:

Salvage of survey plans up
to Senate ... May compromise.

Whether or not there'll be a census of manufacturers, business, and the mineral industries next year is now up to the U. S. Senate.

Business leaders on the Eisenhower team in Washington were trounced unmercifully in their move to obtain House approval for the census funds. They now look to the Senate to salvage the facts-and-figures program so that the census programs may move ahead.

There is some indication Commerce Dept. officials would be willing to settle for a compromise—accept the \$3.4 million to take the much-needed census of manufacturers and delay until 1959 the other two censuses. The Department believes that the manufacturing census is the most necessary of the three "nose-counting" projects.

Clevenger Opposed

Defeat in the House was almost overwhelming—worse than the Commerce Dept. had expected—as an amendment to restore the full \$8.43 million appropriation was voted down 81 to 28. Opposition to the appropriation was led by Rep. Cliff Clevenger, R., Ohio, chairman of the appropriations subcommittee which pared the President's request from the supplemental money bill.



"Your blood hurts?"

THE IRON AGE

NSIA: Unsnarls Defense Knots

Founded by Forrestal, unique industry group provides Pentagon with reservoir of industrial experience . . . Non-profit, non-political, non-lobbying . . . Profit is knowledge—By W. V. Packard.

♦ WITHOUT fanfare, a unique industrial association is quietly going about its business of rendering invaluable service to the nation. We mean the National Security Industrial Assn.

Founded by James Forrestal in 1944, NSIA is non-profit, non-political, non-lobbying in nature. Its purpose: to provide the Defense Establishment ready access to industry's vast reservoir of experience and knowledge.

In describing this service we can best start with an example:

Problem: With world conditions precarious in 1953, field commanders demanded stepped-up delivery of the "Mighty Mouse," the Navy's folding-fin aircraft rocket. Complicated problems of production, assembly and distribution seemed insoluble. The problem was presented to NSIA.

"Outstanding Service"

Solution: Earl L. Canfield, president of The Sight Light Corp., Deep River, Conn., offered his own funds and time as a member of the NSIA Ordnance Advisory Committee to solve the problems. He did the job in 6 months.

Results: His solutions not only made possible increased, efficient production and delivery of the "Mighty Mouse," but effected great savings to taxpayers.

"... outstanding service to the Government, the benefits of which are almost incalculable . . ." are words from a Navy report of the project written by Admiral M. F. Schoeffel, Chief of the Bureau of Ordnance.

Admiral Schoeffel's report added, "... Mr. Canfield was motivated by the highest principles. Neither he nor his company stood to profit in any way through these accomplishments. In addition, he transmitted to other commercial manufacturers, possible competitors in some fields, without remuneration, technical instruction and production techniques."

The report culminated in the Secretary of the Navy awarding that service's highest civilian honor, the Distinguished Public Service Award, to Mr. Canfield, Secretary of NSIA, on Mar. 25, 1954.

This is the spirit of NSIA.

In the 10 years since it was

founded NSIA membership has been expanded to more than 600 companies, ranging from giants of industry to virtually unknown companies. Together its members employ more than one-third of the nation's manufacturing labor force. Dues are small.

These companies contribute time and talent of highly skilled personnel (largely on the executive level) who can assist Defense Dept. with expert advice.

NSIA's method of operation is simple. The Defense Establishment presents problems to any one of 13 standing advisory committees covering such diverse fields as ordnance, procurement, and packaging. Additional advisory committees are formed when necessary.

Individual problems are acted upon by task committees (at present numbering 65) which work under the advisory committees. Membership on these committees is open

to the best qualified men, regardless of whether or not they are affiliated with NSIA member companies.

Solve Patent Problem

Not all the work of NSIA is as interesting as smashing the "Mighty Mouse" bottleneck. But a relatively dull subject, such as patent requirements in government contracts, can be equally important.

Originally government contractors were required to sign over rights to their products so that others, even competitors, dealing with Uncle Sam could use their patents. Obviously this was not very popular, and the entire patents structure was threatened. Yet in a hot or cold war, sharing patents benefits the nation in security, time, and funds.

Its unique organization enabled NSIA to take on the difficult solution of this vital problem. A compromise was worked out. Revisions acceptable to industry and government brought increased cooperation and mutual effort. The nation gained inestimably.

What Members Gain

Of course, NSIA benefits do not all follow a one-way street. There are distinct advantages to members, as well as to their government.

At fairly frequent intervals NSIA members and government representatives make trips to industrial plants where mutual problems are discussed. Recent trips were to the U. S. Submarine Base and Electric Boat Div. of General Dynamics Corp. at New London, Conn., and to the Fairless Works of U. S. Steel Corp.

Although selling within the framework of NSIA is taboo, mem-



JAMES FORRESTAL pumped action into a dream of cooperation

bers nevertheless gain a lot of useful knowledge that helps them do business with Uncle Sam.

They become familiar with organization and operation of the Defense Establishment. They meet and work with officials of the government and armed forces. And they get a much improved understanding of what the government buys and how it is used. Frequently this leads to suggestions of better, cheaper ways to make defense products, and sometimes even to better products.

Shipbuilding:

Government orders will aid badly sagging industry.

Second phase of operation "nudge" — formal announcement that the Federal Government is stepping up its rate of contract placing to boost the economy in the face of lagging defense spending—will be aimed at aiding the suffering shipbuilding industry.

Secretary of Commerce Sinclair Weeks says the first move was letting of \$875 million in road construction contracts 6 months earlier than planned.

The shipyards, which have told the Government they will have to close down altogether at the end of this year if no new keels are laid, will be in for \$385 million worth of construction, plus about \$45 million for repairs. Mr. Weeks said the contracts will be let soon.

Build Super Carrier

Navy has also awarded contracts to its Brooklyn shipyard for a new super aircraft carrier; two atomic submarines at Portsmouth, N. H., and announced plans to build a score of smaller vessels, most of them at private shipyards.

Mr. Weeks' announcement of the purchase speed-up plan led to speculation that Defense Dept. would soon begin awarding contracts for all its procurement instead of holding them until needed.

In another shipbuilding move, the Senate-House conferees approved the 20-tanker bill, providing that 15 of the tankers will be built in private yards and 5 in Navy facilities. The Navy has \$733 million for new ship construction and \$122.5 million for conversion in fiscal 1955. Much of the work will be let out immediately.

Surplus:

Commerce studies curbs on resale of defense material

Technical market studies are soon to be made by U. S. Commerce Dept. to determine the impact on the civilian economy which may be created when selected surplus items are sold by the military.

This program of market studies is allied to the new plan for utilizing Commerce Dept. advice in deciding when and how to sell surplus personal property (THE IRON AGE, July 29, p. 58).



UP 90 MILES go these complex electronic instruments in rockets at Holloman Air Development Center, N. M. H. F. Scholte, University of Michigan project engineer, checks instrument head before fitting to rocket body.

Cooperative efforts of the Commerce and Defense Depts. now are aimed at setting up for the first time a systematic review of certain surplus personal property items declared excess to military needs.

Industry divisions of Business & Defense Services Administration will weigh the cumulative market impact of property offerings on commodity inventories, prices, and employment.

Defense Dept. will be able to use results of this review in making plans for property disposal.

Need More Lubricants

Military requirements for synthetic lubricants to be used in jet engines are expected to total about 1.7 million gal in the three fiscal years which began July 1.

After fiscal 1957, says assistant Defense Secretary T. P. Pike, there will be a substantial rise in demand.

He anticipates a need for expansion in production of synthetic lubricants to meet future requirements. The material desired is bought under specifications MIL-L-7808B for high-thrust engines powering most modern U. S. planes.

A breakdown of military consumption for this year and the next two years shows the following: fiscal 1955, 250,000 gal; fiscal 1956, 601,000 gal; fiscal 1957, 854,000 gal.

Contracts Reported

Including description, quantity dollar value, contractor and address. Italics indicate small business representatives.

Battery jars and cover assemblies, 5400 ea., \$538,098, Electric Storage Battery Co., Philadelphia, Pa., J. W. Boyes.
Tractors, 4 wheel drive aircraft, 180, \$1,326,900, The Frank G. Hough Co., Libertyville, Ill.
Machines, grinding gear, 5, \$456,027, High Precision Products Co., Westfield, N. J.
Automatic screw machine, 6-spindle, 16, \$547,356, Cone Automatic Machine Co., Everett Lane Windsor, Vt.
Automatic screw machine, 6-spindle, 1, \$172,641, New Britain-Gridley Machine Div., New Britain, Conn.
Automatic screw machine, 61, \$407,550, Brown & Sharpe Mfg. Providence, R. I.
Dieing machine, 25 ton, 6, \$104,787, Henry & Wright Div., Einhart Mfg. Co., Hartford, Conn.
Diecasting machine, hydraulic high pressure, 7, \$187,233, B. & T. Engineering & Sales Co., Detroit, Mich.
Milling machines, thread, 34, \$408,476, Hanson-Whitney Co., Hartford, Conn.
Cri-Dan, type b, threading machine, 16, \$374,912, Lloyd & Arms, Inc., Philadelphia, Pa.
Broaching machine vertical, 12, \$71,148, American Broach & Machine Co., Ann Arbor, Mich.
Truck, fire 4 x 4, 8, \$97,315, The Four Wheel Drive Auto Co., Clintonville, Wis.
Trucks, fork lift, gasoline, 19, \$74,852, Clark Equipment Co., Buchanan, Mich.

Report To Management

What New Tax Bill Does

President Eisenhower has been successful in getting congressional approval of what he considers his most important piece of legislation—the omnibus tax revision bill (H. R. 8300).

Main purpose of the bill is to remedy many long standing tax inequities. But in correcting these flaws the bill also does much to add new strength to the economy.

Tax provisions favoring business can't miss meaning increased sales, higher production, improved productivity, more jobs. The tax revision also amounts to a tax cut for business and individuals which will total around \$1.36 billion during the current fiscal year, much more later on.

How It Affects Your Firm

What does the new tax bill mean to you? For you as a businessman importance of the tax revision is this: (1) It provides faster tax write-off on capital investment in new plant and equipment. Makes it possible to writeoff up to two-thirds the cost of a new capital asset in the first half of its estimated useful life. This accelerated depreciation provision means it will be easier for your firm to acquire new production facilities needed to increase productivity.

(2) New tax bill permits stockholders to deduct the first \$50 received in dividends from their taxable income and provides a 4 pct tax reduction on dividends over this amount. This will stimulate investments, means your firm will be able to get more risk capital.

(3) Passage of the tax revision bill also means your firm will be required to continue paying taxes at the rate of 52 pct on earnings over \$25,000 for another year. Corporate tax rates had originally been scheduled for a reduction to 47 pct effective last April.

(4) New tax bill also helps business by extending the period over which net operating losses may be applied against profits.

And it eases regulations on tax deductions for research outlays, shifts burden of proof in determining whether accumulation of undistributed profits is excessive from companies to the government.

You will benefit as an individual

As an individual you may benefit from the new tax revision in many different ways. If you're a stockholder you will be paying less tax on dividends. When you retire you will be able to exclude from taxes all earnings up to \$1200. You will now be able to deduct cost of medical, dental, hospital care that exceeds 3 pct of your income. Previous deduction was only on expenditures over 5 pct. Also, it is now possible to deduct up to 30 pct of income for charitable contributions. Previous limit was 20 pct.

You Can Be an Economist for 5¢

You don't have to be an economist to know our recession has been much more talk than fact. All you have to do is buy a newspaper.

But labor leaders and the Democrats are still doing everything they can to play up recession. July issue of *The United Automobile Worker* carried a bold-face headline, "June Job Figures Show Economic Stagnation." But if you happened to see the July 29 issue of *The New York Times* you saw a much different and more accurate picture.

Headlines on the Times financial page read like this: G. M. Net Earnings Soar; Jersey Standard Improves Profits; Westinghouse Volume Up 4 Pct; Inland Steel Sets Earnings Record (output also at peak); R. C. A. Posts Highs in Sales, Income; Profit Increased by Brooklyn Gas; General Telephone Gains; Wheeling Steel Gains. All of these highly optimistic reports appeared on only one page. The only down item was head reading, TV Output Off 44 Pct. This is pretty convincing proof the recession is over and that it never was so bad as many have made it sound (see p. 7).

INDUSTRIAL BRIEFS

Will Supply . . . Allis-Chalmers Mfg. Co. has completed negotiations with the Atomic Energy Commission to furnish approximately \$15 million worth of compressor equipment for its new plant now under construction at Portsmouth, Ohio.

Named . . . Chester A. Arents, coordinator of research at Illinois Institute of Technology has been named secretary of the National Conference on Industrial Hydraulics to be held Oct. 14-15 at the Sheraton Hotel in Chicago.

Agent . . . Taft-Peirce Mfg. Co. has appointed the Cowan Supply Co., Atlanta, as its agent for the state of Georgia.

They'll Be There . . . Link-Belt Co. will display cross section of a 60-in. wide belt conveyor capable of handling 100 tons of iron ore per min at the 1954 Metal Mining Exposition of the American Mining Congress next month.

Opens Plant . . . Vanadium-Alloys Steel, Canada, Ltd., held an open house to mark the opening of its London, Ont., plant recently.

In Operation . . . Inland Steel Co., Chicago, has put into operation a second continuous galvanizing line and retired from service the last of its old-style molten zinc "pots."

Annual Recognition . . . Worcester Pressed Steel is sponsoring a new Presteel Award—a new annual award that will be made to the individual or company selected as having made significant contributions to the advancement of the metal stamping industry. The company is sponsoring the award in association with the Pressed Metal Institute.

San Diego Plant . . . Ducommun Metals & Supply Co. opened a new San Diego plant recently at 1300 Wilson Ave., San Diego. Richard Finfrock is manager.

Erected . . . Permatex Co., Inc., Brooklyn, has completed steel erection and processing equipment which is being installed for a chemical plant under construction on a 6-acre tract in the Fairfax industrial area in Kansas City.

Research Center . . . Inorganic Chemicals Div. of Monsanto Chemical Co. will have a new research center when it is completed at Creve Coeur, Mo. Construction is scheduled to start soon and will be completed in 1955.

Opens Office . . . Aero Engineering Co., a division of Garrett Corp., has opened a new office in St. Louis. Donald E. Flinn will be in charge.

New Dealer . . . Clark Equipment Co. has appointed George Industrial Equipment Co., Inc., sole distributor of its line of forklift trucks and other materials handling equipment in the Greater New York area.

Just Organized . . . Control Products Co., Inc., Noblestown Rd., Oakdale, Pa., is a newly organized company. It will design and manufacture automatic control systems for the steel, nonferrous, electrical, oil, chemical and other process industries.

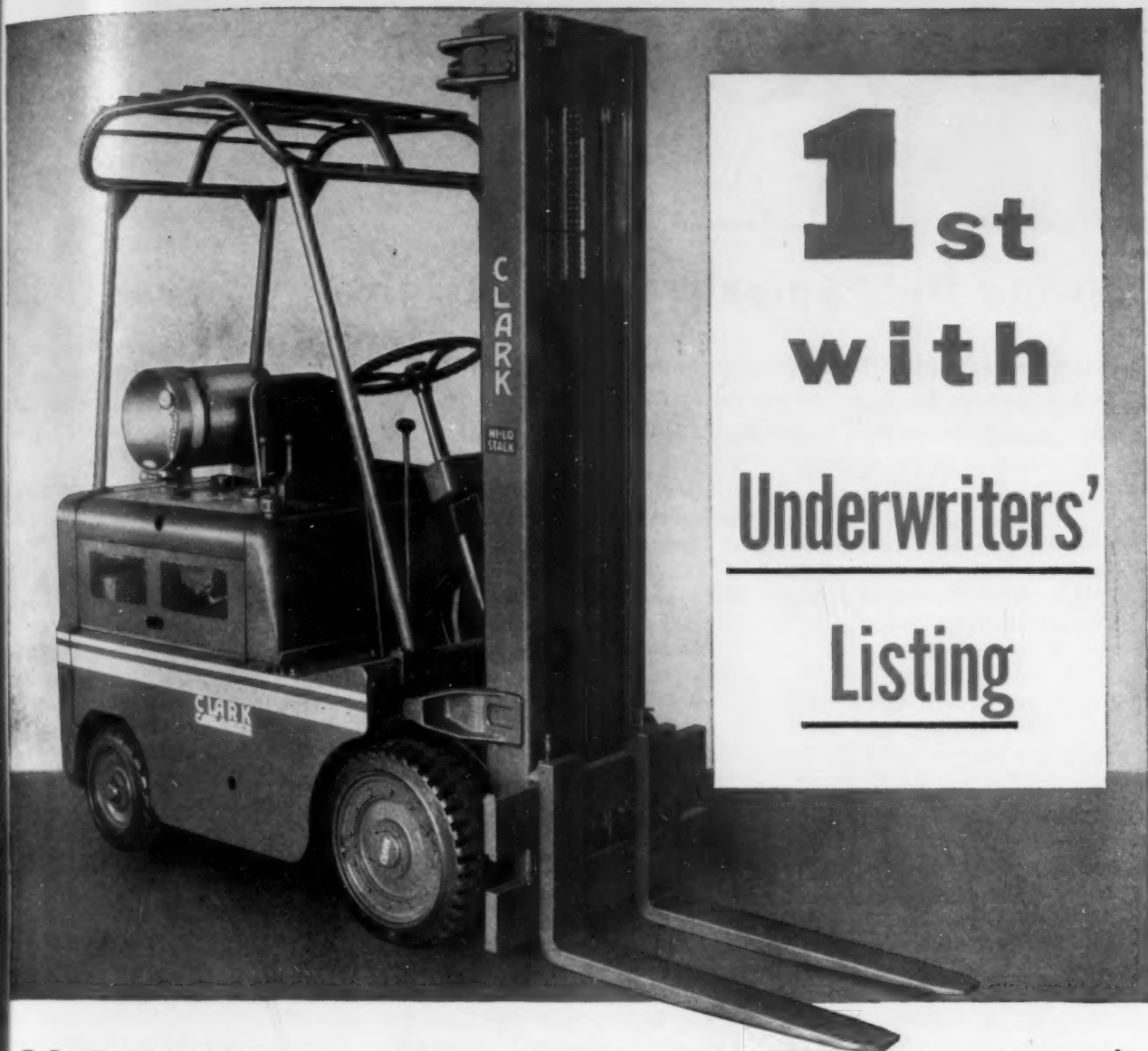
Hear Ye . . . Lewis-Shepard Products, Inc., Watertown, Mass., appointed Upton Bradeen & James Ltd. as its exclusive sales and service representative in the Ontario, Canada, area.

Opportunity Knocks . . . Dravo Corp. is offering cash prizes totaling \$1200 to employees who enter the company's 16th Annual Technical Papers Competition. All employees are eligible to submit papers covering all aspects of the company's diversified operations.

Established . . . General Electric Co.'s Chemical Materials Dept. established a new experimental shell-molding foundry with complete facilities for making shell molds and pouring castings. The new foundry is located in Pittsfield, Mass.



ONE-MAN CAB, 50-in. wide, permits new International Harvester Co. trucks to carry truck-long lengths of pipe, steel, lumber within legal limits. Objects up to 21 in. wide may be carried on each side.



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reduces engine maintenance, eliminates obnoxious exhaust fumes

1. Greatly reduces engine maintenance:

- eliminates unburned carbon deposits and crank-case dilution.
- eliminates fuel pump and complicated carburetor adjustments.

2. Eliminates obnoxious exhaust fumes:

- L.P.-Gas provides almost perfect combustion, excellent for indoor operations.

3. Provides safe, efficient operation:

- vacuum ignition switch is interlocked with fuel line and manifold, impossible to spill fuel or load-up engine.
- high compression head (8.5 to 1) gives maximum economy and power from high octane L.P. Gas.
- quickly demountable tank takes 3 minutes to change.
- Stellite valves and seats prevent burning from high flame temperature of L.P. Gas.

*4000 lb. capacity, available with standard shift, Hydratork or Dynatork.

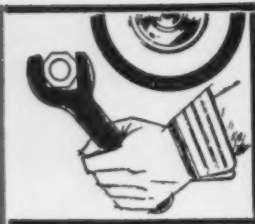
Now you can have the advantages of liquified petroleum gas-powered (butane, propane) materials handling, with complete safety. The Clark L.P.G. Carloader is the first lift truck to receive the all-important listing of Underwriters' Laboratories. Field and factory tested for two years, Clark's unit is specifically designed and metered for fork truck operation. For details, call your local Clark dealer, listed under "Trucks, Industrial" in the Yellow Pages. Or send the coupon for specifications.

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Second Half Sales Outlook Bright

Industry leaders optimistic despite conflicting July sales reports

... Chrysler tries for 20 pct of market ... GM earnings up 36 pct ... Nash ups output ... Fall debuts firm trend—By R. D. Raddant.

No one seemed exactly sure last week what had happened to auto sales in the opening weeks of July. *Automotive News* reported beginning July sales as nearly equal to last month's turnover. *Ward's Automotive Reports* indicate a 43 pct drop in the first 10 days of July. But everybody agreed that automotive industry leaders are high-spirited over the prospects for the remainder of 1954.

GM Earnings Up ... Chrysler was back in business, its strike ended, reportedly was making plans to boost the 12 pct of the car market it captured in 1954 to something over its old 20 pct in the year to come.

General Motors earnings rose by 36 pct despite a dropoff in defense production of 22 pct and a decline in truck sales. At the same time, GM passenger car sales in second quarter 1954 had risen to a position only 5 pct below the alltime high for that period established last year. Total first half passenger car sales were "just about the same as the peak half-year unit sales volume" last year during a record first half that was bolstered by the remaining dregs of the demand buildup of the Korean period.

Truck Makers Chipper ... Nash, at the same time, announced that it will boost production schedules by 18 pct in mid-August to meet climbing demand. Production had already been boosted July 1, when output was placed at 13 pct over the June rate. The second production increase will bring the total of employees brought back since July 1 to 800 at Nash plants in Kenosha and Milwaukee.

Motor truck manufacturers had some reason to share in the feeling of optimism suggested above. Trucks with all major producers were gaining some strength this week, though the 6-month figure for 1953 was 569,417 as compared with 468,590 in 1954. Exports indicated a solid gain this first half, with truck totals for export rising from 67,311 in first half 1953 to 95,286 in 1954.

Score to date for the entire industry was 14.4 pct below last year's in truck manufacture, and 11.6 pct behind in passenger car output, according to *Ward's Automotive Reports*.

Used Stocks Drop ... It was finally argued that the truth of July sales lay somewhere between the two estimates; that the dropoff couldn't have been so bad as 43 pct; that part of it was due to a strong selling drive at the end of June; and that conversely, things weren't so good in July as they had been in June.

There was one unclouded bright spot, at least. Used car inventories had been pushed downward across the nation to bring July 1 levels about 3 pct below the previous

month. New England led the reduction, but the Southwest, where inventories scaled upward by 10 pct and sales followed only as far as 6.5 pct, pulled up the average.

New Models Sooner ... Meantime, new model announcements were indicated to be moving en masse back into this year, rather than the once fashionable January showing. GM is believed ready to bring on the new models anywhere from October to December, Ford looks probable for November and December (another December-January curtain-raiser last year) and Chrysler has announced that it will be ready in the late fall. Chrysler announcements may come through as early as November, since the company has indicated that body-framing and carbuilding will begin as early as September. The strike, which idled 45,000 Chrysler employees in Detroit recently, has apparently not affected the retooling program.

New car sales in the July month were still in the air. But sales high or low, new models were on the way, and probably sooner than any past year.

Push Civilian Diesels ... Packard indicated last week that its lightweight diesel engines, produced for the Navy since 1951, were headed for expanded use. The company reported that an engineering project is being set up for the express purpose of adapting the engines for civilian use.

Described as 75 pct lighter than conventional diesels, and now produced for the Navy in 6, 8, 12, and 16 cylinder models, the engine



"Do I have to be present at the drawing in order to win?"

achieves its reduced weight by extensive use of aluminum.

Present Packard production is geared pretty much to Naval requirements, but with nibbles from several industries (notably railroad, but including trucks, buses, and industrial power), it's probable that additional area in the company's East Grand Boulevard, Detroit, plant will be made available for light diesel production.

With Packard the first builder of a diesel aircraft engine, reworking of the lightweight marine diesel should be no problem.

Materials:

Carboloy's new high temperature alloy in production.

Carboloy, General Electric affiliate, is now producing on a commercial scale a new alloy for jet engine buckets that will withstand higher temperatures than any now available. With Packard's recent announcement that it will contract a new gas turbine for the Navy, utilize the engine for possible adaptation to civilian passenger car use, it appeared that the turbine engine was (1) becoming increasingly practicable, (2) an even hotter item in automotive circles than it has been all year.

Commercially available wrought alloys are currently rated at about 1500°F, but Carboloy expects to see in the near future alloys of nickel or cobalt-chromium hardened with molybdenum, tungsten, carbon, titanium and aluminum that will perform consistently in temperatures above 1600°F, largely due to the newer method of manufacture in vacuum facilities located at Schenectady. Carboloy will take on job-shop melting to produce special bearing and spring alloys, magnetic alloys, and other special high temperature applications.

Operations at Detroit will be expanded by Carboloy with furnaces ranging from 100 to 1000 lb capacity per melt, to be in operation by Mar. 1 of next year.

For turbine applications, it can mean more and better blade material.

Inspection:

Ford robots grade, sort, select parts for reworking.

Robot inspectors that will handle 3000 units per hour and check tolerances to 0.001 in. then sort the inspected exhaust valves at the same rate, are in operation at Ford Motor Co.

A single inspection machine checks length, diameter, relationship of the valve head to the stem. Then the seat of the valve head is inspected for machining defects. Following inspection, the machine sorts the approved valves into plus and minus groups within the 0.001 in. allowed tolerance, directs each group into separate chutes.

Not satisfied with this performance, the designer of the machine

AUTOMOTIVE NEWS

has built in an electronic relay "memory" unit that decides, at a 3000-unit-per-hr rate, if a flaw in any single exhaust valve can be corrected by machining. The machine then separates these "possibles" from reject and approved parts.

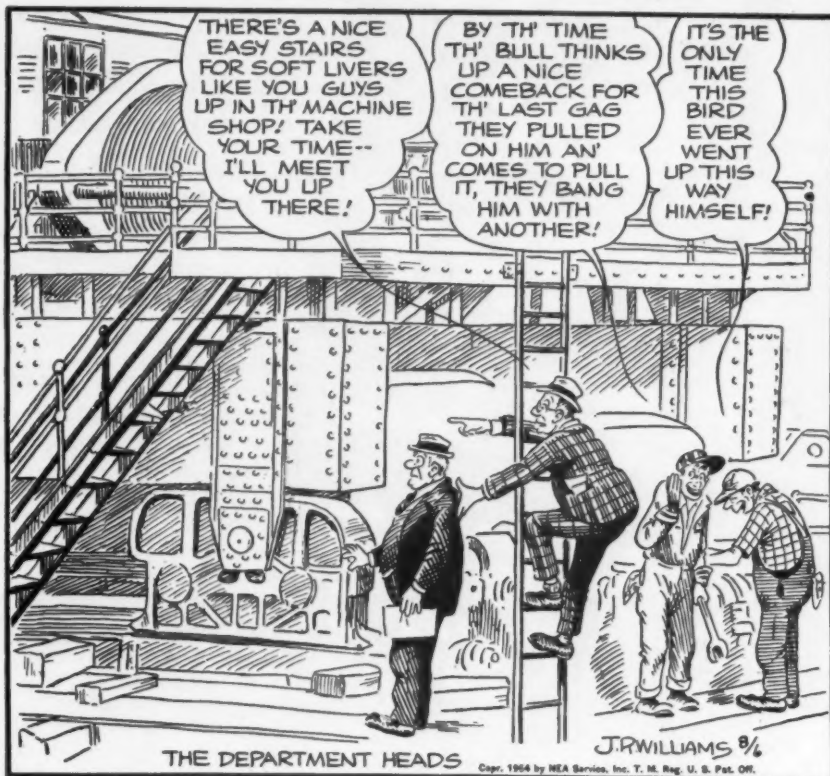
And to keep the rest of the line as busy as itself, the inspector signals for more valves, still automatically, when its feed chute begins to run low.

At the finishing end of the same line, Ford is now using radioactive particles to check air movement through completed engines. A measured amount of isotope is fed into the air intake of a test engine and measurements made from the amount of radioactive material picked up on series of sensitized plates in the direction of air flow.

Ford engineers hope to produce a smaller, more portable version of the instrument.

THE BULL OF THE WOODS

By J. R. Williams



Automotive Production

(U. S. and Canada Combined)

WEEK ENDING	CARS	TRUCKS
July 31, 1954...	110,185*	20,732*
July 24, 1954...	111,630	19,114
Aug. 1, 1953....	140,651	27,626
July 25, 1953...	143,587	29,287

*Estimated. Source: Ward's Reports

August 5, 1954



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THIS WEEK
IN
WASHINGTON

Tells Pentagon We Need More Men

Defense Secretary Wilson orders Army to plan on 18 divisions rather than previously planned 17 . . . May cancel previous orders authorizing reduction in Army, Navy, Marine strength—By G. H. Baker.

Further evidence of the coming expansion (small, but significant in the overall defense program) comes to light in Defense Secretary Wilson's recent disclosure that he is ordering the Army to plan on 18 divisions, rather than the previously-scheduled 17.

Army chiefs up to now have taken the position that 17 divisions was all they could support under the manpower ceiling imposed upon them.

Spread It Thinner . . . But Mr. Wilson tells them to look again, do some recalculating, spread the available troops over a larger area.

To industry the result is to be an increase in military orders, particularly for vehicles and light weapons.

The defense boss also drops hints that he is getting ready to cancel earlier orders which would have reduced sharply the authorized strength of not only the Army, but Navy and Marine Corps as well. Reductions will take place as scheduled, but will not cut so deeply into troop strength. By the start of the next fiscal year, Army, Navy, and Air combined will have a total strength of slightly more than 3 million men, under present plans.

Defense mobilizers may ask your firm to lend Washington some of your key officials—either from your office or your plants—in the months ahead. Reductions in the national budget that affect the defense agencies (Office of Defense Mobilization is a prime example) make the planners give

new thought to their chances for borrowing more WOC (without compensation) experts from industry. Chance to get expert advice at low cost appeals to a budget-conscious Cabinet.

Nickel Users Cheerier . . . The sturdier nickel supply, coupled with the somewhat reduced volume of plating orders, has just about ended the volume of nickel complaints arriving on the desks of government control officials. Business & Defense Service Administration reports that complaints from nickel users have all but vanished in recent weeks.

As far as the threat of renewing government controls over nickel is concerned, there is no

intention on the part of any control officials in Washington to reimpose controls at any time in the foreseeable future excepting, of course, in time of war emergency.

New Tax Check . . . Your firm's corporate tax returns are headed for new scrutiny by Washington. President Eisenhower approved a Federal Reserve Board request for permission to examine the statistical transcript cards that corporations use in preparing their income tax returns. Purpose of the Reserve Board request is to gather materials for its forthcoming study of pension funds and how they are invested.

Rapid rise of industrial pension funds and request for gilt-edge securities is beginning to stir up some basic effects upon the investment industry. The Reserve Board study will probe this trend, and may suggest new rules to guide the operation of pension funds in the future period.

Building Funds Softer . . . Construction, 1954's eye-opening boom industry, gets another boost from the recent government order requiring less bank reserves.

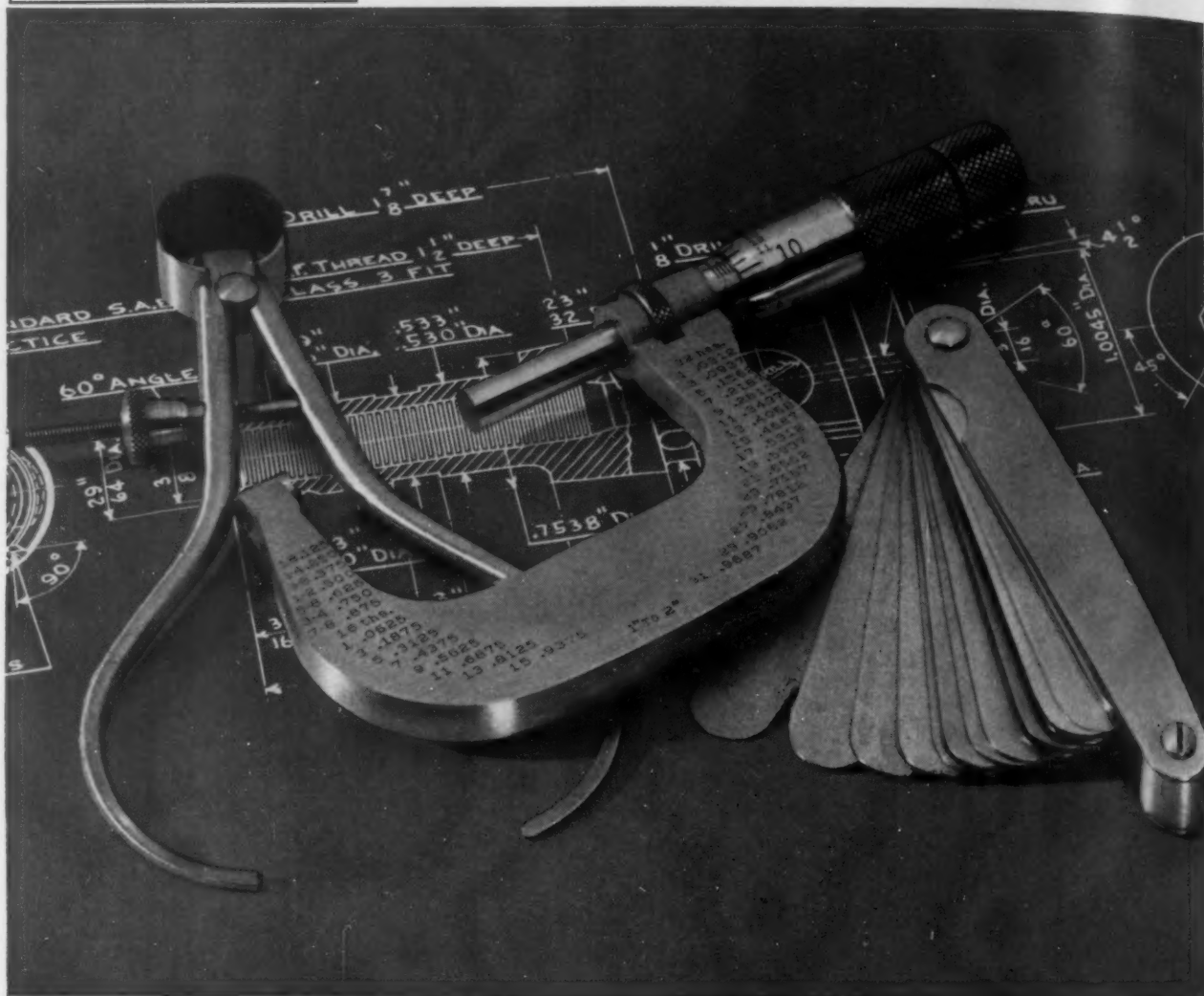
This means the banks have more money available for lending—both to those on the building and selling end of the business, and those on the purchasing end. Construction records are being racked up nearly every week at every level of the industry.

New and expanded industrial plants are going up; new stores and light commercial outlets (such as service stations) are

Ready Defense Manual

Publication date of Sept. 1 is now set for the government's detailed wrap-up on how industry can and should prepare to defend itself against possible enemy attack. William Kerber's Iron & Steel Div., Business & Defense Services Administration, has completed its final polishing of the manual and has concluded negotiations with American Iron and Steel Institute for publishing of the manual. Interested executives should communicate with AISI, 350 Fifth Avenue, New York, N. Y. Ask for the industrial defense planning manual for the iron and steel industries.

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mushrooming in suburban areas, and residential construction is running at a rate that will see more than 1 million units started this year. That's not all. Experts figure new housing starts next year will be between 1,200,000 and 1,400,000 units—a record that could well topple the all-time high set in 1950-51.

Embargo Exports . . . A tight embargo is clamped on exports to Communist-controlled Indochina and free Hanoi-Haiphong Enclave area by U. S. Commerce Dept. following the division of Indochina by the Geneva Conference.

U. S. Bureau of Foreign Commerce cancels all export licenses to Indochina, and announces shipments already in transit—except those of a nature usually permitted to red areas—will be frozen.

Embargo will prevent goods still in U. S. ports awaiting shipment; those at the Panama Canal, and shipments passing through U. S. foreign trade zones destined to be off-loaded in Indochina for transshipment will be halted.

Export licenses cancelled under the order, the Department says, will be reviewed and revalidated if they are in the best interest of the "foreign policy and national security" of the country. New applications for licenses to export to non-Communist areas of Indochina will be approved if the goods are to remain in the free area.

Hear Piggyback Case

Arguments that the public interest will be served more fully if railroads are permitted to haul loaded truck trailers are being heard at an Interstate Commerce Commission hearing on piggyback rates.

Railroad spokesmen at the hearing deny that the roads are trying to monopolize freight transportation by setting up their own rail-trailer service. According to Vice-President Fred Carpi of the Pennsylvania R. R., the roads merely want to maintain competition with the thriving highway freight industry.

The trend toward wide dispersal of industrial plants, says Mr. Carpi, places railroads at a disadvantage

which might be remedied in part if the rail companies are allowed to continue piggyback operations at rates they have worked out.

ICC gave the Pennsylvania and five other railroads permission on July 9 to begin the trailer-hauling service.

Opposition to the rates offered by these roads is voiced at the ICC hearings by certain trucking groups and terminal operators. They charge that the rates are not compensatory and therefore should not be allowed.

Autos:

Ban on bootlegging won't go through this year.

Automobile dealers believe they have performed important groundwork which will result in government action to make bootlegging of new cars a hazardous undertaking. But it is unlikely that legislative moves will be made this year.

Proponents of two bills designed to curb bootlegging are looking ahead now to 1955 for another opportunity to state their case.

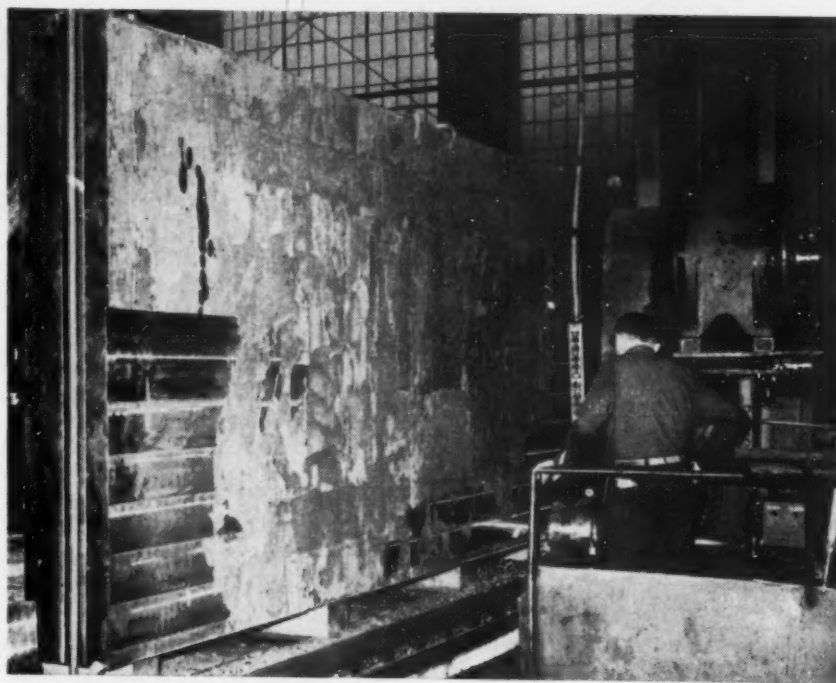
Dealers' representatives appeared last week before House and Senate groups to give their support to two

bills, S. 3596 and H. R. 9769. These would permit auto manufacturers to include antibootlegging clauses in their sales agreements with dealers and to disenfranchise firms which indulge in bootlegging.

Apprehensive about the over-all effect which would be created if an antibootlegging clause were written into franchises is Federal Trade Commission. An FTC spokesman testified at last week's hearing on S. 3596 that the action would violate fundamental policy of the antitrust laws.

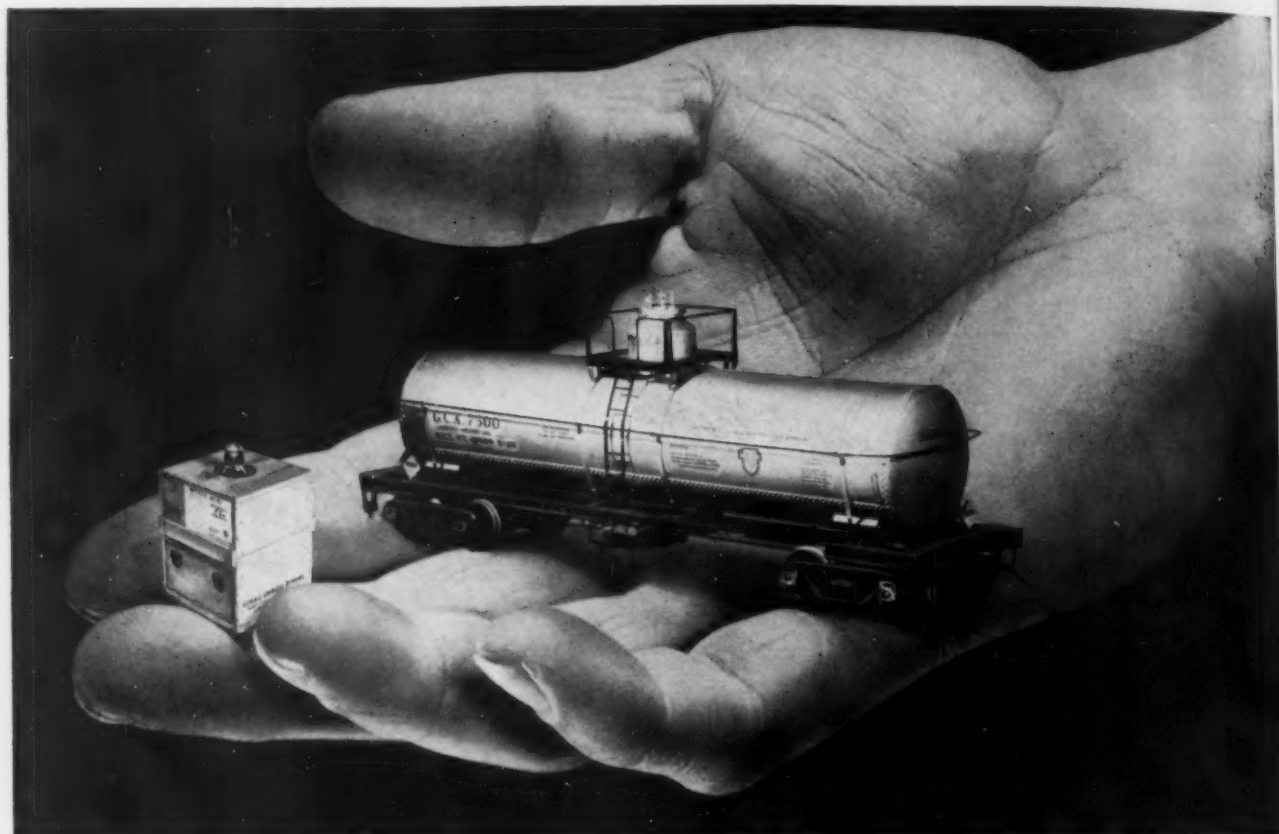
FTC Chairman Howrey holds that the proposed legislation would get at a result, rather than the cause, of bootlegging. He contends that if bootlegging is a growing menace it would point to the possibility that dealers have more cars that they can dispose of.

An alternative to legislative action, FTC suggests, is to have the agency itself make a thorough examination of the situation.



BIGGEST DIE BLOCK ever made by Heppenstall Co., Pittsburgh, will be used in 15,000-ton hydraulic press at Cleveland plant of Alcoa. Made from 55-ton ingot, it was delivered as 23-ton die holder after rough machining and heat treating. Two of the die holders each $78\frac{1}{4} \times 168 \times 12\frac{1}{4}$ in., were produced by Heppenstall.

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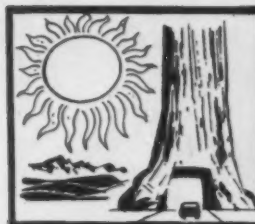
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WEST
COAST
REPORT

Seek New Solution to Smog Problems

Stanford University reports no easy remedy for Los Angeles area's multi-million air pollution headache . . . May inject anti-contaminants into air . . . See continued steel tonnage for homes—By R. R. Kay.

Los Angeles smog, butt of radio and TV comedians' jokes, is no joke to Los Angeles industry. Having spent millions of dollars trying to lick smog, they learned that they may have to continue to spend and spend.

After six years of comprehensive scientific study, Stanford Research Institute this week published a 134-page report summarizing its findings. Stripped of scientific language, the report states air pollution authorities must re-examine all the ordinary contaminants which arise from industrial, commercial, and domestic activities in Los Angeles county. Complexities of the problem are now only becoming apparent.

Add Agents to Air . . . Dr. A. M. Zarem, manager, Los Angeles Div. of SRI, and chairman, National Air Pollution Symposium, told THE IRON AGE recently, "It is even possible that our hope may lie not only in removing contaminants, but in adding additional chemicals to the atmosphere to set up competing reactions. This might sound like 'dream stuff' but, after all, we do not approach our water pollution problems any less basically . . ."

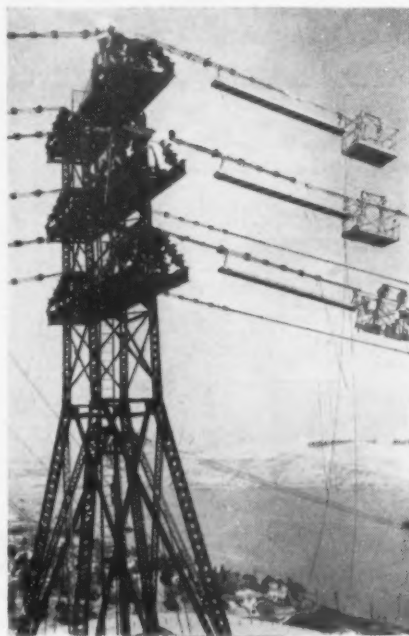
Can any of the smog blame be put, today, at the door of the metalworking industry? Not according to Gordon P. Larson, director, Air Pollution Control District, Los Angeles county. He told THE IRON AGE, "The metalworking industry has done its job . . ."

Steel for Homes . . . On a visit to the San Francisco Bay area, Walter W. McAllister, chairman

of the Home Loan Bank Board, Washington, said U. S. can use 1.84 million new homes a year for the next five years. But he doesn't feel enough people have enough money to buy that many new dwellings. For 1954, he predicts 1.2 million new homes will be built, only slightly less than the average for the last four years.

With over 4 tons of steel going into each 6-room house (see THE IRON AGE, July 15, 1954, p. 59), home construction provides a steady market for about 5 million tons of steel a year.

Auction Army Surplus . . . Going, going, gone \$20 million worth of Army material will go under the hammer October 4-8 at the



HIGH WIRE ACT is just a day's work to painters on 4427 ft long power cables spanning San Francisco Bay.

Sharpe General Depot, Stockton, Calif. Cars, trucks, parts, ordnance equipment, hand tools, air compressors, electrical and electronic equipment, Signal Corps supplies, and Engineers Corps heavy equipment are up for sale.

Strike Hurts Foundries . . . The Seattle area's 6-week lumber strike is hurting foundries and machine shops. There have been some layoffs already.

Many shops say they will feel the effects of the strike for some time to come. Ordinarily, lumber mills are stockpiling logs this time of year for winter operations. But now the stock is gone. This may well mean less machinery and foundry business during the winter months, too.

Chrome-Plate Large Pipe . . . First western tank for hard chrome-plating large diameter, long-length tubing is now operating in Los Angeles. Set in a 43 ft deep excavation, the tank holds 2350 gal of chromic acid solution for processing steel, stainless, and brass tubing up to 2½ ft diam and lengths up to 40 ft. Tubing in these sizes for the western oil, natural gas, and water industries was usually shipped to the Midwest for plating, or was handled in western shops by the slower double-end method of plating.

Pacific Gas & Electric is looking into the feasibility of piping Canadian natural gas to the San Francisco Bay area.

This would require a huge amount of pipe for the 1700-mile stretch from the Peace River area, some 150 miles north of Edmonton.

The significant results of THE FIRST 120 DAYS OF TOOL-LEASE

*A report by Francis J. Trecker,
President, Kearney & Trecker Corp.*

JUST four short months ago — as this is written — Kearney & Trecker demonstrated again its leadership in the machine tool industry by pioneering a program, unique among machine tool manufacturers, whereby its products might be obtained on a lease basis, as well as by outright sale or conditional sales agreement.

The results of the Kearney & Trecker TOOL-LEASE program have exceeded even our most optimistic forecasts. It has been a great stimulant of inquiries and new business, particularly where the replacement of worn and obsolete milling and precision boring equipment has been under consideration.

At this time the TOOL-LEASE program has been responsible for several million dollars' worth of new business. The success of this program is ample evidence that our decision

to lease was founded on a correct appraisal of the needs of metalworking industry for some way to modernize its plant equipment without delay where working capital for the moment must be used for other purposes. In this respect TOOL-LEASE is serving a practical and useful purpose, and we are both pleased and grateful for the acceptance this program has been accorded.

The Kearney & Trecker TOOL-LEASE program today is an integral part of our company's general sales policy. The soundness of the program is evidenced — not only by the 120 day record of leases made by large and small companies alike — but also by the many complimentary letters received from leading figures in almost every executive capacity in business and industry.

Today our sales organization is fully prepared to explain the details



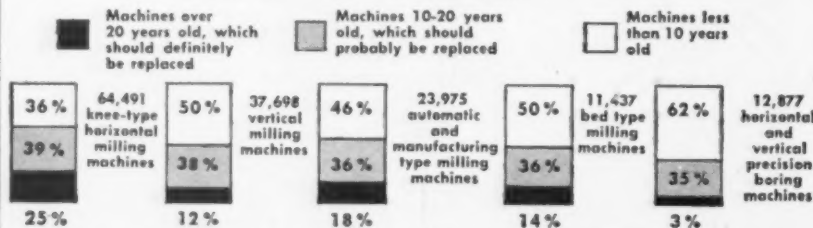
FRANCIS J. TRECKER, President
Kearney & Trecker Corporation

of the Tool-Lease program to anyone interested. Briefly, it offers a choice of three basic plans with varying options to continue the lease, terminate the lease or purchase the equipment.

Among the proved advantages of Tool-Lease are: Releases working capital for production expansion. Assures you the services of a machine as long as needed, avoiding risk of obsolescence. Permits user to judge machine's merits in actual shop performance without going to expense of purchasing the machine.

We invite your letters of inquiry. For complete details on Tool-Lease including actual costs . . . for prompt service and assistance in analyzing your plant modernization problems — contact the Kearney & Trecker sales representative in your area.

Milling and Boring machine obsolescence is CRITICAL!
Overall picture in 16 basic industries shows
more than 50% need replacement.



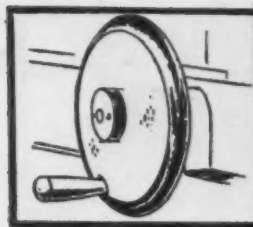
Figures adapted from 1953 McGraw-Hill survey of metalworking industry.

Ask for Tool-Lease Bulletin TL-10A and booklet titled "Critical Picture of Creeping Obsolescence." Write or call Kearney & Trecker Corporation, 6784 W. National Ave., Milwaukee 14, Wisconsin. Phone: Greenfield 6-8300.



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since 1899*





**MACHINE
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Builders Look for Pickup This Fall

Believe automotive competition will mean increased demand for automation equipment . . . Also expect to tap military's reserve of uncommitted funds . . . See step-up in 1955 defense spending—By E. J. Eagan, Jr.

From the vantage point of a June peak in 1954 new business, machine tool builders have their sights raised over an expected dip in July and August, are peering hopefully into September—and beyond.

Builders look for business to pick up soon after summer vacation schedules end, and then hold at a comfortable level. No one is willing to predict just how good incoming business will be or how long the sales picture will remain favorable. But many metalworking equipment manufacturers seem confident that their industry is about to enter a fresh cycle.

Educated guesses rate the new era as "unspectacular but healthy."

Tax Bill Helped . . . Machine tool makers admit that these "feelings" about future business aren't based on specific facts or figures. Only sure thing is that management attitudes are definitely on the optimistic side. One reason is congressional approval of the administration's omnibus tax reform bill.

Builders have worked hard for years to speed revision of the nation's tax laws, especially those sections dealing with capital equipment depreciation. They can rightfully claim some credit for passage of the new bill with its liberalized depreciation provisions (see p. 53). But now they've got to sell these tax benefits to prospective customers.

Stress Selling . . . National Machine Tool Builders' Assn. conducted a week-long sales confer-

ence at Cornell University last month and called it "the biggest and best yet."

Emphasis was on the constructive, hard-hitting sales effort needed to tap a tremendous potential volume of new and replacement business. Main sales angle stressed was low cost productivity of modern equipment and faster tax writeoffs.

See Firming in Detroit . . . Hopeful fall outlook for machine tool sales is bolstered by deductions applied to future automotive and defense business. Detroit and Washington rumor mills are going full blast.

Eyeing Detroit, metalworking machinery executives see a steady flow of new business coming up, possibly a bonus peak here and there. Recent mergers among the independent carmakers, a new and obvious comeback determination

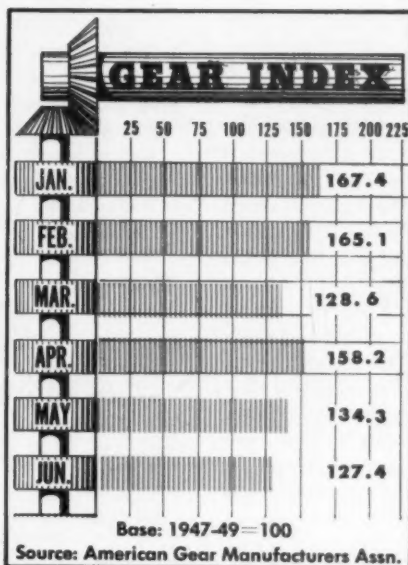
at Chrysler, and announced expansions and improvements at General Motors and Ford—all this competitive jockeying inevitably means new tooling, more automation.

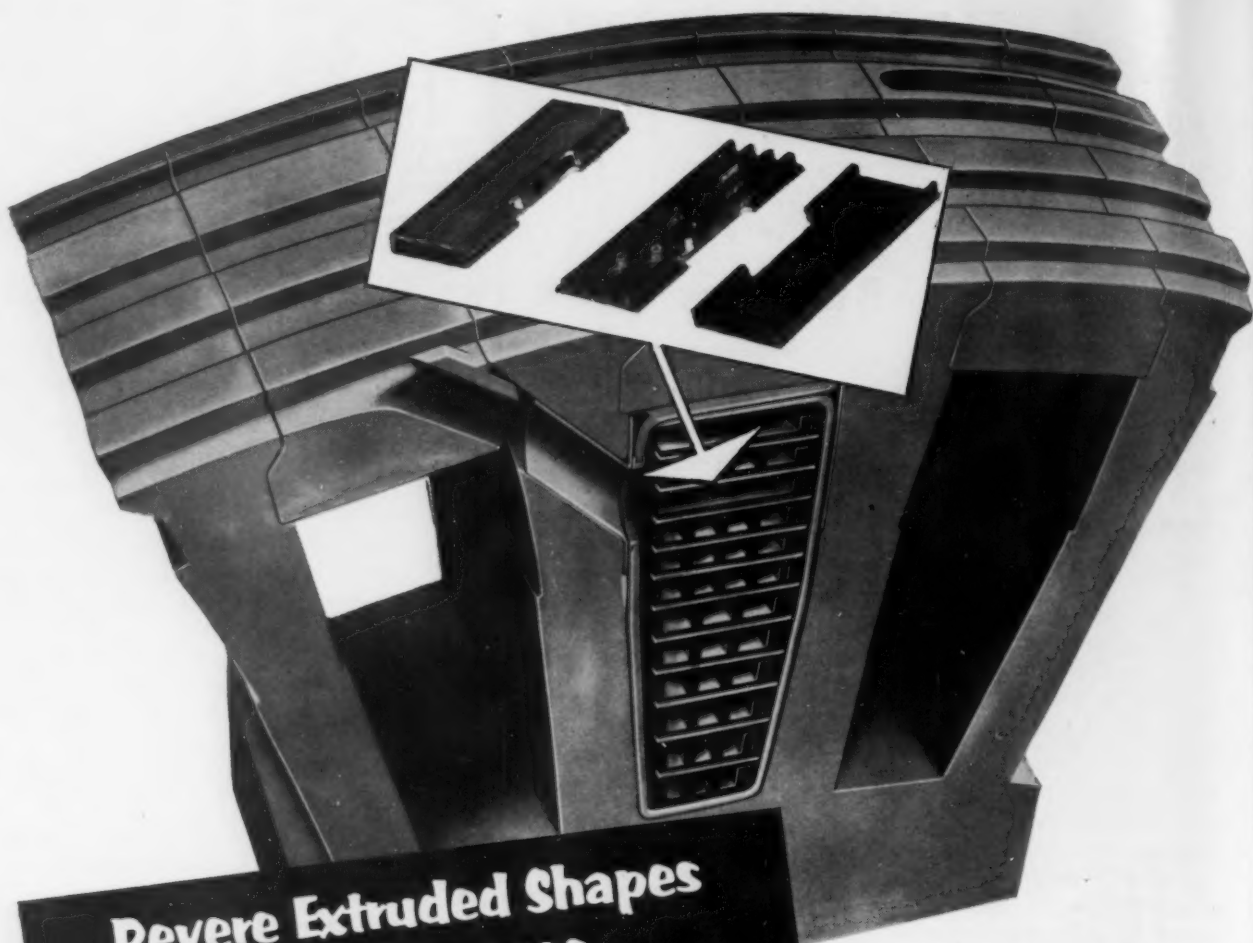
Automatic equipment and transfer lines cost more than general purpose tools, but the rewards are bigger, too. Savings on countless mass production jobs offer plenty of proof.

See More Defense Orders . . . Washington officials are extremely cautious when quizzed about potential defense spending plans involving machine tools. But the fact is that Dept. of Defense has an important reserve of uncommitted funds available for fiscal 1955. And Defense Dept. brass fought hard to retain these sums in the recently approved budget.

Defense planners have been tossing ideas into Secretary Wilson's military project hopper regularly. After careful checking, only the most urgent emerge. For added assurance that new spending will buy the biggest dollar value, most machine tool purchases have been delayed. Object is to match project needs against tools listed on a soon-to-be-completed giant inventory of government-owned metalworking machinery.

At first glance this economy-mindedness might present a bleak sales picture to machine tool builders. But the recent lull in defense spending seems to have ended with placement of substantial new Air Force contracts, should build up steadily with spillovers into other military projects.





Revere Extruded Shapes help increase ELECTRIC GENERATOR OUTPUT

(perhaps you, too, could use our shapes
to your advantage)

Model section of G.E. direct-cooled rotor for turbine-generator. Note intake scoop at left front, hollow copper conductors of extruded shapes, in center, exhaust outlet at right rear.

Insert shows typical extruded shapes after milling by G.E. to provide circulation of hydrogen throughout the field coils.

Winding temperatures are an important limitation upon the output of electric utility generators. They must be kept within safe limits to avoid damaging the insulation. Hence all generators have some method of cooling. Conventionally, the heat passes from the copper conductors in the rotor, through the insulation (which presents a formidable barrier to heat transfer) to the steel parts of the rotor body, and air or hydrogen is pumped through and around the rotor. It was realized long ago that more effective cooling could be obtained if some way could be found to remove the heat directly from the rotor coils.

Some years ago generator engineers of the General Electric Company, Schenectady, New York, proposed making each turn of the rotor coils of two copper extruded shapes; one a channel, the other comb-like. Fitted together, they would make hollow passages for the hydrogen, which would be taken in through scoops on the surface of the rotor, and exhausted through outlets some distance away, also on the rotor surface. In that way, the rotor could be quite uniformly and more effectively cooled throughout its length, and output greatly increased in relation to the physical dimensions of the generator.

An important problem was found in the extruded shapes. Design requirements had to be adjusted to the opportunities and practicalities of the extrusion process. Today these copper shapes, 20 feet long, drawn and finished to strict specifications as to dimensions and straightness, are making it possible to remove four times as much heat as conventional systems, and to double the generator output with no increase in size... For full information on extruded shapes, see the nearest Revere Sales Office.

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The Iron Age

SALUTES

R. F. Helmkamp

Inventive talents plus 40 years behind torches enabled this expert to advance the art of machine flame cutting, made him a prominent author in his special field.

When Dick Helmkamp, machine cutting specialist of Air Reduction Co., started his career running a cattle ranch with his brother in Canada, he had little inkling that he'd wind up holder of four patents and author of a score of technical articles on the subject of machine gas cutting.

A hail storm which put the Helmkamp ranch out of business was the freakish twist of luck that put Dick into the welding trade shortly before the outbreak of World War I. During that conflict he found himself as an instructor in a unique situation; teaching girls to weld the fuselage tubing on the Air Corps' famous "Jenny" training planes.

Dick joined Airco as a welder in the railroad department in 1919, but it wasn't until about 10 years later that he encountered the real love of his professional life, machine cutting.

In 1932 he was issued his first patent for the Multiple Cutting Torch Apparatus. His latest

was in 1952 on the Universal Gas Torch Cutting Machine. These patents and his many technical papers are the fruits of Dick's constant search for the perfect flame cutting machine. He describes his ideal in these graphic terms, "a squirrel with a torch on his back."

If such a device, a small machine able to follow an infinitely varied pattern over a large area with a minimum of human guidance, ever appears it will probably be stamped "Patent pending, R. F. Helmkamp."

Dick is often approached by younger men who want help in polishing their own technical articles. His favorite advice is borrowed from the Roman writer Quintilian: "Make everything so plain that your audience not only may understand but must understand."

In his spare time, spent at home with his wife, Dick follows his hobbies of fine craftsmanship in wrought iron and leather.

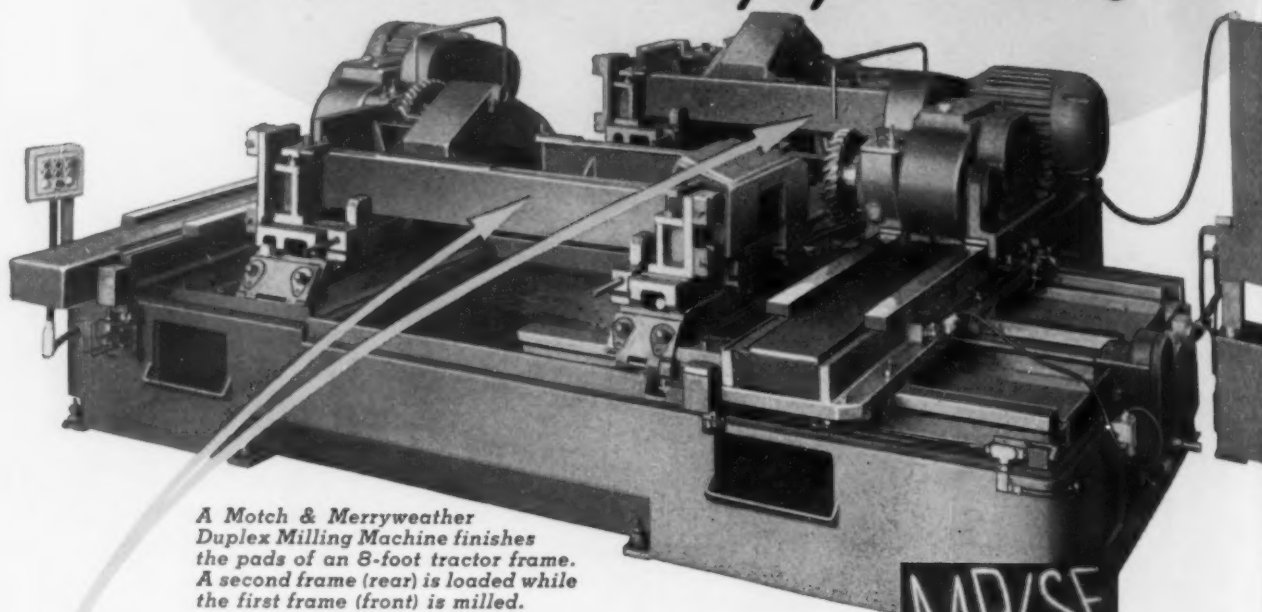
August 5, 1954

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BY MOTCH & MERRYWEATHER



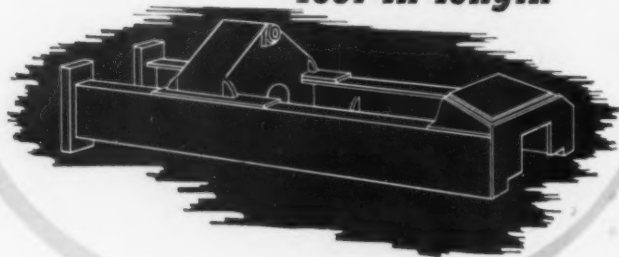
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*... especially for
Large Parts 6 feet to 11
feet in length*



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The Iron Age INTRODUCES

Cline H. Welch, elected president, Alloy Cast Steel Co., Marion, Ohio.

D. L. Wilkoff, becomes president, The Wilkoff Co., Youngstown, Ohio; **Lee Wilkoff**, elected executive vice-president; and **C. L. Robinson**, named secretary-treasurer.

Harold Nutt, becomes vice-president and general manager, Borg & Beck Div., Borg-Warner Corp., Chicago; and **Richard L. Smirl**, named director of engineering.

John W. Dixon, named vice-president in charge of coordination of research and new product development, Clevite Corp., Cleveland.

E. T. Larsen, and **Dr. W. C. Rueckel**, named vice-presidents, Henry J. Kaiser Co., Oakland, Calif.

Douglas R. Beggs, appointed assistant to vice-president-production, The Carpenter Steel Co., Reading, Pa.; **Harold W. Miller**, promoted to chief plant engineer; **O. T. Thompson**, promoted to assistant branch manager, Detroit territory; and **R. A. Kokat**, named assistant branch manager, Philadelphia operations.

Paul H. Miller, becomes assistant to the vice-president in charge of Research & Development, Wesson Co., Detroit.

Roland P. Kauffman, named vice chairman of board, Camden Forge Co., Camden, N. J.

Thomas J. Dolan, elected director, Mid-West Abrasive Co., Owosso, Mich.

Jack C. Stearns, appointed to an executive position with Dow Chemical Export Co., Dow Chemical International Ltd. and Dow Chemical Inter-American Ltd.

Nathan Angstreich, appointed comptroller, Eastern Brass & Copper Co., New York.

Carl J. Kaiser, appointed assistant director of industrial relations, McCulloch Motors Corp., Los Angeles.

Vincent Ayres, becomes chief engineer, Saginaw Div., Eaton Mfg. Co.; **G. D. Line**, named chief assistant engineer; and **P. J. D'Arcy**, promoted to assistant to the sales manager.

Joseph J. Carr, appointed field engineer, Bay State Abrasive Products Co., Westboro, Mass.

D. L. Edmunds, appointed chief engineer, Mechanical Industries, Inc., Pittsburgh.

E. E. Durbin, appointed chief of inspection - modernization, Fort Worth plant, Convair, division of General Dynamics Corp.

Warden A. Brooks, named district sale engineer, The Ingalls Iron Works Co., Birmingham.

Philip J. Larson, appointed senior contracting manager, American Bridge Div., U. S. Steel Corp., Chicago.

Irving J. Minett made operation manager, Chrysler Delaware tank plant, Chrysler Corp. and **Hayward F. York**, appointed operating manager, Detroit tank plant.

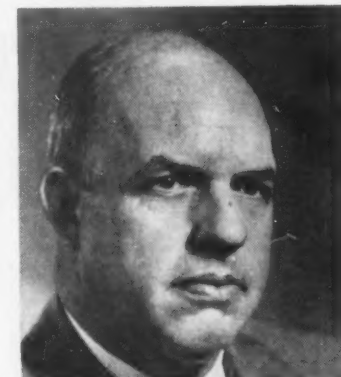
PERSONNEL



KATHLEEN McTIGUE, named administrative assistant to president, The Colorado Fuel & Iron Corp.



WALLACE E. POWELL, president, Control Products Co., Inc.



CLAYTON D. GROVER, becomes president, Whitehead Metal Products Co., Inc.



THOMAS BOHEN, elected chairman of the board and chief officer, Whitehead Metal Products Co., Inc.

B. R. Hagelbarger, appointed Central District sales manager, **Johnson Steel & Wire Co.**, subsidiary of **Pittsburgh Steel Co.**

Herbert J. Cutler, Jr., becomes sales engineer, **American Fire Clay & Products Co.**, Canfield, Ohio.

Robert F. O'Connell, sales engineer St. Louis office, **The Permutit Co.**

Edwin A. Swensson, appointed sales and service engineer, **Herman Pneumatic Machine Co.**, Pittsburgh.

Paul A. Pierce, appointed manager of operations, **Continental Foundry & Machine Co.**, East Chicago, Inc.

Vance N. Wilson, appointed manager, **Pennsylvania Salt Mfg. Co.**, Chicago Heights, Ill.; and **Robert W. Clarke**, named manager, Delaware, Ohio, plant.

J. Henry Schindler, Jr., named manager of export sales of explosives, **Hercules Powder Co.**, Wilmington, Del.

Arthur J. Sherburne, named manager of technical service, Laminated & Insulating Products Dept., **General Electric Co.**, Coshocton, Ohio; **Richard T. Walsh**, becomes supervisor of molded laminated; **Ronald W. Staley**, named supervisor-insulating product engineering; and **Carl A. Drake**, appointed superintendent of Coshocton plant.

Neill S. Brown, named manufacturing manager, Car Division, **Packard Motor Car Co.**, Detroit.

E. Finley Carter, becomes manager of research operations, **Stanford Research Institute**.

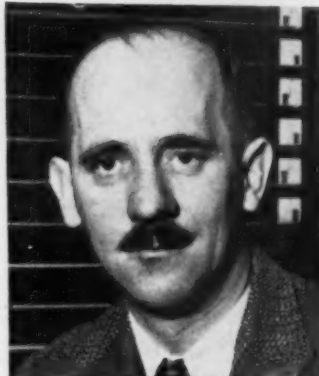
Thomas R. Conroy, appointed industrial relations manager, **Pittsburgh Plate Glass Co.**, Greensburg, Pa., plant.



WILLIAM L. WEST, elected president, **Torit Manufacturing Co.**



ROBERT B. WITTENBERG, elected a vice-president, **Great Lakes Carbon Corp. Electrode Div.**



STANISLAW T. JAZWINSKI, appointed director of research, **Barium Steel Corp.'s subsidiaries**.



ARCHIE F. WILSON, appointed director of manufacturing, **The Hydraulic Press Mfg. Co.**

ARMSTRONG *Drop Forged* LATHE DOGS



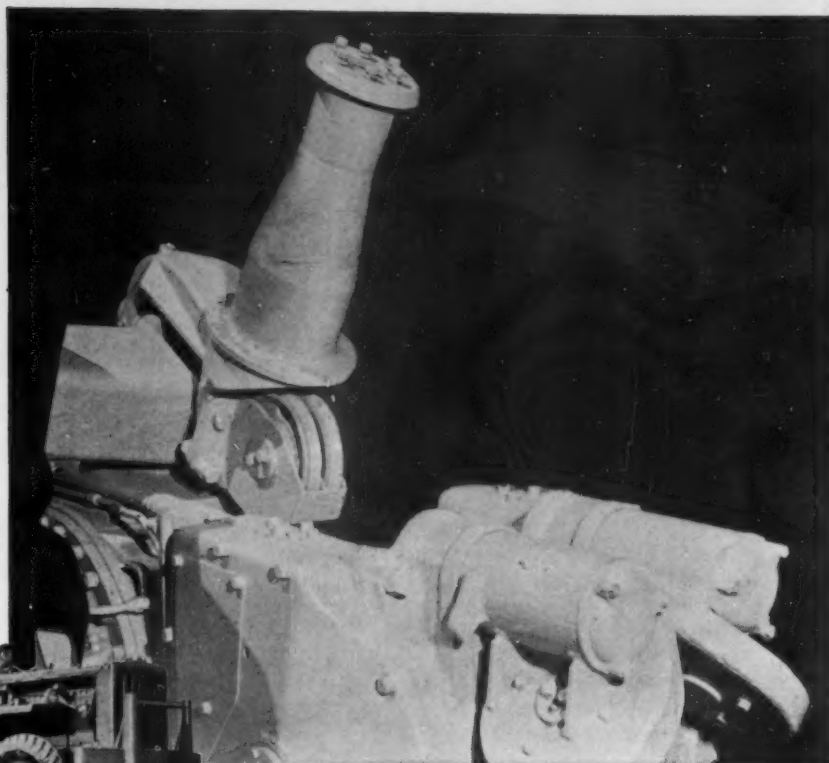
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Right: This "king bolt," made of Republic Alloy Steel, serves as hitch between tractor and trailer. Below: Caterpillar Diesel DW15 Tractor and No. 15 Scraper working on road job in Colorado.



How Republic Alloy Steels Help CATERPILLAR®

Take the "king bolt." It's the link between tractor and scraper or wagon. It takes all the pull, the bumps, and the shocks when a tractor drags earth-moving or other heavy equipment over uneven ground. It has to be tough.

Caterpillar uses a specific Republic Alloy Steel for this part on its DW15 tractor. And for other parts as well, many of which are not as easy to spot. But all of which are important.

Republic has been supplying Caterpillar with alloy steels for a good portion of the 50 years that track-type machines have been roaming and moving the earth. More than this, Republic metallurgists have helped Caterpillar use these steels to best advantage.

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August 5, 1954

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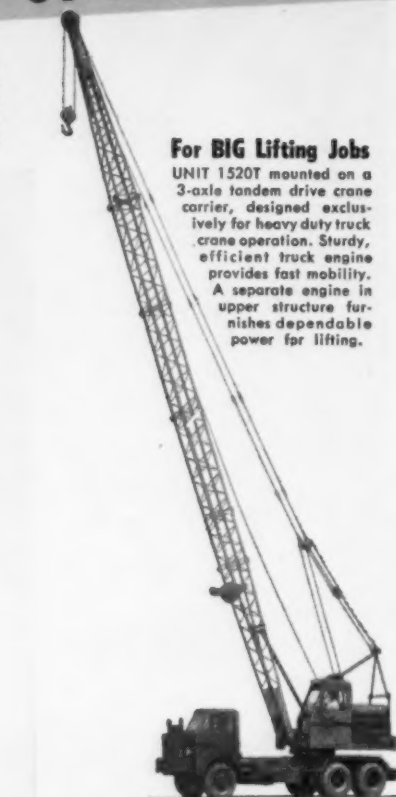
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Consolidated Vultee Aircraft
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Dow Chemical Company
Frigidaire
General Electric Company
General Motors (Pontiac Div.)
Goodyear Tire & Rubber Co.
Great Lakes Steel Corp.
International Harvester
Niagara-Mohawk Power & Light
North Carolina Pulp & Paper
Northern Natural Gas Co.
Oliver J. Olsen Shipbuilding
Packard Motor Car Company
Pennsylvania Railroad
Pittsburgh Plate Glass Co.
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Shell Oil Company
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Universal Pictures, Inc.
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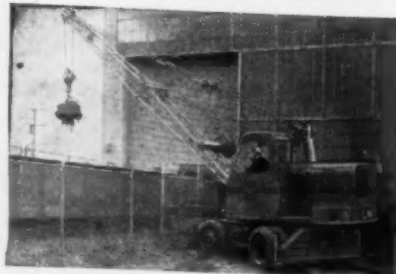


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PERSONNEL

Arthur Tobin, becomes central district manager, The Fellows Gear Shaper Co., Springfield, Mass.

William E. O'Connor, named salesman for stainless steel and titanium, Republic Steel Corp.

Lawrence Young, appointed superintendent of mechanical shops, Kaiser Steel Corp., Fontana, Calif.

William J. Fabish, appointed Eastern representative, Hammond Machinery Builders, Inc., Kalamazoo, Mich.

James L. Murray, becomes engineering representative, The Garrett Corp.

Robert E. Dietrick, appointed sales representative in Central Indiana, Inland Steel Products Co.

OBITUARIES

Leon A. Paddock, 75, former president and a director of American Bridge Co., a division of U. S. Steel Corp., until his retirement in 1946.

Robert E. Pearsall, 60, president, general manager and board chairman, James McGraw, Inc., recently.

George T. Trundle, Jr., founder and chairman of the board, The Trundle Engineering Co.

Arthur H. Indle, 77, one of the founders of Consolidated Machine Tool Corp., Rochester, and a member of the board of directors, Farrel Birmingham Co., Ansonia, Conn.

Ernest P. Bartlett, 80, E. P. Bartlett & Co., Chicago, at his home in Winnetka, Ill.

Harry A. Thorson, assistant treasurer, Belle City Malleable Iron Co., Racine, Wis., recently.

Edwin L. Ramsey, 75, retired superintendent of steel production, Wisconsin Steel Works, International Harvester Co., Chicago.

Increases melting rate—

Improved Coke Cuts Cupola Operating Costs

♦ Cupola operation may be improved, with resulting economies in foundry operation, through use of a new type foundry coke . . . A novel method of manufacture has produced a coke with high density and low internal porosity . . . It is low in sulfur and has an ash content of about 4 pct.

♦ Cost of the metallic charge can be reduced in some cases . . . Melting rate and metal fluidity can be increased . . . Refractory burnout is reduced and normal operating temperatures are reached more quickly after shutdown.

♦ ECONOMIES in cupola operation through use of an improved type of coke may now be obtained by foundrymen. The new coke, designed to meet specific problems arising in normal cupola operations, is more dense than conventional foundry cokes and has a lower ash content. It is characterized by low internal porosity and has a more uniform structure.

Cupola operation with the Densite foundry coke is not appreciably different than with conventional cokes. Moreover, cupola control is simplified. Chief advantages of the new coke include: (1) Cupola melting rate can generally be increased by about 30 pct. (2) Metal fluidity is increased. (3) Refractory burnout is approximately halved. (4) Normal operating temperatures, after shutdown, are reached more quickly. (5) Savings in metallic charge materials are possible in some cases through substitution of less costly materials. (6) Spout



S. W. Martin
Vice President



B. W. Gamson
Director of Research and Development



T. G. Bowers
Project Supervisor

Great Lakes Carbon Corp., Chicago, Ill.

metal is lower in sulfur since less coke is used.

Foundry coke serves several purposes in the cupola. It supports the metal charge until the melting zone is reached, supplies the fuel for melting, and provides a porous bed through which combustion gases can travel with minimum pressure drop. It is used to control the length of the carbon pickup zone, and maintain bed height. Coke is used to raise the carbon content of the melt to the required level while minimizing addition of harmful constituents, such as sulfur, and to effect melt rate and metal temperature.

To satisfy these requirements, the coke should have adequate mechanical strength, as measured by the shatter and tumbler tests. Compressive strength at elevated temperatures is needed to maintain optimum size. Coke should be strong enough to maintain its size and shape in handling and in the cupola.

Coke structure and ash content affect carbon, sulfur pickup.

Uniformity of size consist is necessary to maintain a porous bed since the ratio of coke size to cupola diameter is a determining factor. Combustion properties, insofar as reactivity to carbon dioxide is concerned, largely controls, the metal to coke ratio obtained in the cupola. Coke structure and ash content are significant for carbon and sulfur pickup.

Assuming adequate coke size, low sulfur and good mechanical stability, it is desirable to engineer low reactivity and good carbon absorption properties into the highest quality foundry coke. Many expedients have been tried to attain these characteristics in the cupola. Low ash carbons such as pitch coke, scrap graphite, electrode butts, have all been used. Each has engineering or cost disadvantages.

Carbon pickup may frequently be improved by increasing the weight of coke splits, thus increasing the height. This procedure reduces the melting rate and can cause excessive burn out of the cupola refractory as well as making cupola control difficult.

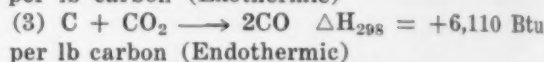
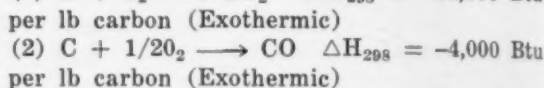
Carbon additions are frequently made at the spout or the ladle. This procedure may prove costly, however, since the loss of carbon by oxidation may exceed 50 pct. In addition, unless very high spout temperatures exist, car-

bon pickup is slight. This type of carbon addition is made successfully where it is used as a graphitizing agent to prevent under cooling in thin wall casting section.

There is need for an inexpensive carbon raiser which would, if anything, increase melting rates and give high carbon pickups.

Pig iron is used in most cupolas in varying proportions of the metallic charge to help maintain proper metal carbon analysis. Normally pig iron is high priced compared to cast iron or steel scrap. Development of a new foundry coke that could either reduce or eliminate pig iron would yield additional savings.

In the cupola, heat for melting iron is supplied by combustion of carbon. Several major reactions occur:



From a heat economy standpoint, maximizing carbon dioxide formation minimizes coke consumption. In the zone where the air blast enters the cupola, primary combustion product is carbon dioxide and maximum instantaneous heat release occurs.

Rate of coke combustion to carbon dioxide, above about 1800°F, as observed in our labora-

* ΔH_{298} = the standard heat of reaction at 298°K.

HOW FOUNDRY COKES COMPARE

Item	FOUNDRY A		FOUNDRY B	
	Foundry Coke	Densite Coke	Foundry Coke	Densite Coke
Cupola ID in in.....	66	66	54	54
Charge Composition, in lb.				
Returns.....	600	602		
Returns and Purchase.....			1140	1400
Steel Rails.....	1000	1200		
Steel.....			360	400
Silvery Pig Iron.....	65	65		
Pig Iron.....	322	100	500	200
Coke.....	334	125	245	166
Stone.....			60	60
Ferromanganese.....	7	18		
Ferrosilicon.....	6	15		
Ferrosilicon, 50 pct.....			26	32
Metal to Coke Ratio.....	6/1	16/1	8.2/1	12/1
Melting Rate, TPH.....	16-17	23	11-12	15
Spout Temperature, Deg. F.....	2800	2800	2840	2820
Carbon Monoxide in Flue Gas, pct.....	12.0	4.3		
Spout Metal Analysis, pct				
Carbon.....	3.16	3.36	3.15-3.40	3.26-3.36
Silicon.....	1.50	1.45	2.25-2.40	2.11-2.23
Manganese.....	0.75	0.80	0.75-0.90	0.79-0.84
Sulphur.....	0.085	0.080	0.13 max.	0.12
Brinell Hardness.....	223	222	200	220
Tensile Strength, psi.....	44,300	45,900	30,000 min.	33,000

ories, is independent of the nature of the coke but is highly dependent upon the blast air rate. In view of the high endothermicity of reaction (3) it is desirable to suppress the secondary reaction of carbon dioxide with coke to give carbon monoxide. In contrast to equation (1), equation (3) is only slightly affected by flue gas rate, but is dependent upon the specific properties of coke and concentration of carbon dioxide.

High coke reactivity requires higher blast air rates and increased coke consumption due to the formation of carbon monoxide. At the same time it reduces cupola capacity. As a first approximation, the total effective rate of reaction with carbon dioxide for a unit weight of foundry coke, all other variables being constant, appears to be inversely proportional to both the particle size and apparent density.

Based on these needs foundry coke should be characterized by good mechanical stability, low ash, low sulfur, high fixed carbon content, high apparent density and a minimum reactivity to carbon dioxide particularly at or approaching cupola temperatures.

To attain these objectives, an experimental program was conducted in Great Lakes Carbon Corp.'s Missouri Coke & Chemical Div. plant and the Research Laboratories in Morton Grove, Ill. It was found that a foundry coke with excellent properties could be made in a slot oven by novel choice of ingredients. A coke was produced with normal size consist, shatter and tumbler indices and low sulfur content, 0.6-0.7, of regular foundry coke. The new coke, however, has an apparent density in the range of 1.25-1.30 and an ash content of about 4 pct. These compare with density of about 0.9 and ash content of 8-10 pct for conventional foundry cokes.

Fig. 1 shows the typical carbon dioxide reactivity of both types of coke as a function of gross external surface area. Fig. 2 gives the same data expressed as carbon converted per unit time per pound of carbon originally present. Because of the lower coke consumption possible and a lower absolute reactivity of Densite coke, total carbon lost to carbon monoxide is further minimized in comparison with regular coke.

The new coke is characterized by extreme uniformity and low internal porosity. The thick cell walls, compared to foundry coke, result in strong, uniform massive sections. This structure accounts for the high apparent specific gravity.

Use of the improved coke in one foundry, A in the Table, resulted in an increase in melting rate of about 35 pct and a decrease in the coke consumed to about 40 pct of that normally required. In another foundry, B, greater flexibility in melting rate was obtained by lowering bed height, topping with Densite coke, lowering metallic charge and lowering dam height.

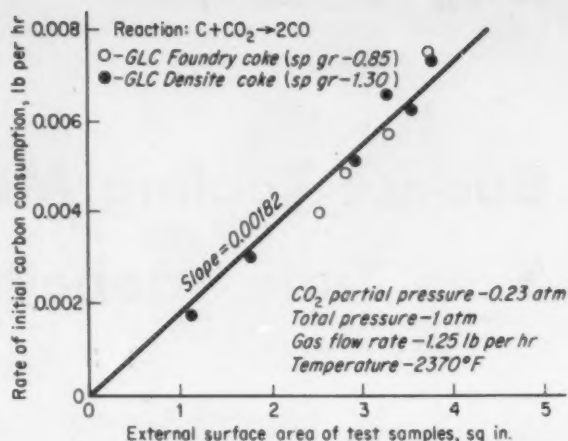


FIG. 1—Comparison of carbon consumption by carbon dioxide of regular and new foundry coke.

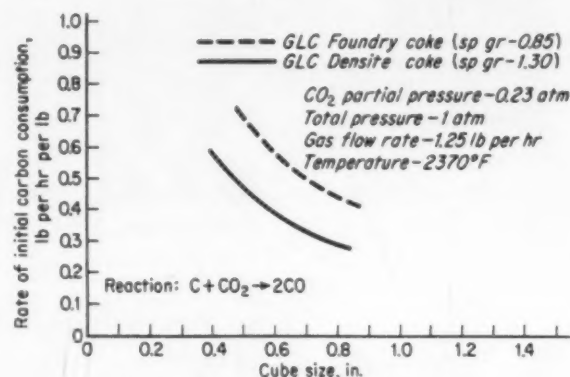


FIG. 2—Consumption of carbon dioxide of regular and Densite cokes per pound carbon present.

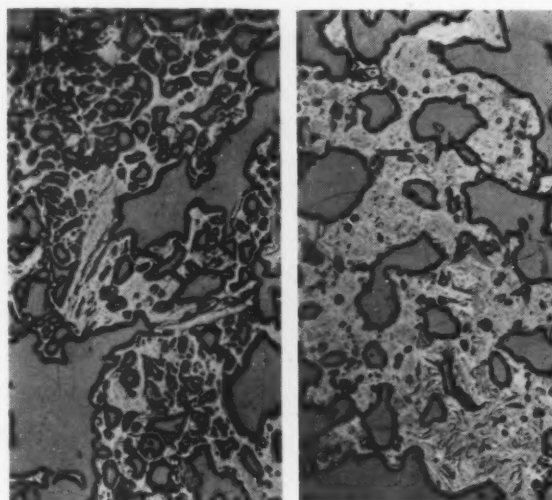


FIG. 3—Low internal porosity and more uniform structure characterize the new coke, right, as compared with a regular foundry coke.

Budget Tooling Methods Save Time, Money On Short Run



By A. A. Merry
Chief Advanced Tool
Engineering



J. H. Lareau
Project Tool Engineer
Pratt & Whitney Aircraft
Div. of United Aircraft Corp.
East Hartford, Conn.

♦ AN UNUSUAL COMBINATION of manufacturing methods was recently used to produce a short run of jet engine burner cones at low cost and in record time. Both the tools and the 45 sets of parts for the fusion welded burner assembly were produced in 5 weeks by Pratt & Whitney Aircraft Div. of United Aircraft Corp., East Hartford, Conn. From 4 to 5 months would have been required to produce the same parts from standard type tooling and by conventional press operations, it is estimated.

In making the parts, it was necessary to keep costs at a minimum. As a start, engineers modeled a part to show how the three bosses were to appear when finally welded into the cone. From the modeled part a plaster reverse was made, and from this a Renite plastic model was prepared for final engineering approval. Aerodynamics and elimination of stress concentrations played an important part in the design.

Welded assemblies of this type offer a special problem. When two thicknesses of metal are joined, one on top of the other, and subjected to vibration, the metal at the joint will

♦ An ingenious combination of budget tooling and forming methods helped produce this short run order at low cost in record time . . . Both tools and parts for the fusion welded cone type assembly were completed in 5 weeks.

♦ The cone, for a jet engine burner assembly, was made in one operation, except for trimming, by flow-turning . . . Bosses were produced in a series of forming operations . . . Final forming and sizing were done in a two step-progressive operation using zamak and plastic dies.

fatigue because this type joint produces a concentration of stress. To avoid this, the three bosses were welded *into* rather than on the cone, Fig. 1. Three holes were blanked in the cone and the bosses fusion welded in place to make only one thickness of metal. The cone itself was made in one operation, except for trimming and blanking, by flow-turning.

The bosses, at various stages in their manufacture, are shown in Fig. 2. If made by conventional tooling, these parts would have required approximately 10 operations involving drawing tools. By using a Cincinnati Hydroform press, it was possible to keep tooling costs low.

The Hydroform uses a hard punch. The die is a rubber diaphragm backed up with hydraulic oil pressure. Tool changes may be quickly made by unscrewing the punch from its holder.

Fifteen operations, from blank to trim, are involved in making the bosses. After each of the four forming sequences the parts are degreased and annealed.

The part starts from an AMS 5510 blank 0.043 in. thick and 2 $\frac{3}{4}$ in. in diam. It is of a

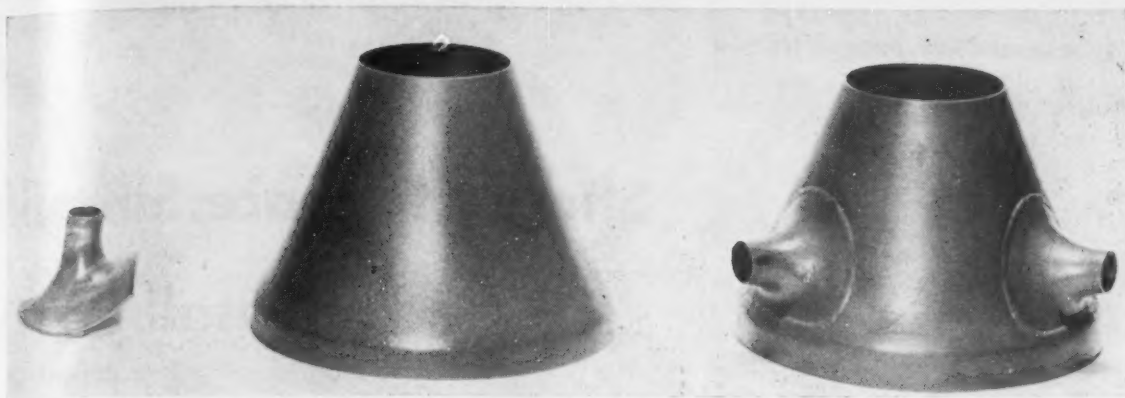


FIG. 1—Cone, blanked to take three bosses is fusion welded to make assembly at right.

sufficient size to supply the metal that will be drawn up into the boss-like section. Four blanks are then blown up at a time on the Cincinnati Hydroform. This operation is critical, requiring that the correct amount of material is displaced.

After annealing, parts are progressively drawn deeper and to a smaller diameter, as shown by the tools in Fig. 3. These plates and pins were used with the same die set to reduce tooling costs.

In the third forming operation the punch is positioned by the Hydroform's base pressure pad. The part is placed over the punch and the upper form die put on top of the part. Pressure is applied by the rubber blanket on top of the die plate, forcing it down while the punch is forced up, drawing the part to a greater height and smaller diameter. During this operation the external flange is free to go as it will until the draw is completed, at which time the flange is flattened.

Final flange forming and part sizing is done in a progressive operation using a Zamak die for a breakdown and a Renite plastic tool, Fig. 4, for the final restrike. This plastic, laminated fiber glass sizing punch and die was produced from the plaster reverse made from the original plaster model.

After trimming, the boss is ready to be fusion welded into the cone. The welding fixture supports the two diameters of the cone and positions the three bosses.

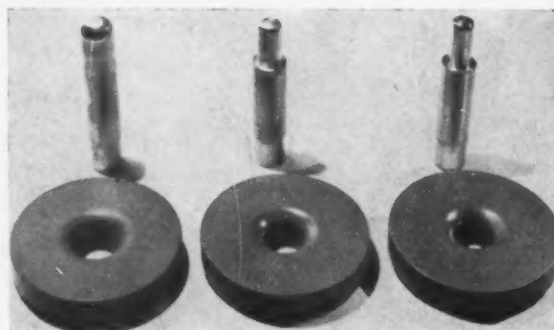


FIG. 3—Three punches and dies used for second forming operation in Farquhar 50-ton press.

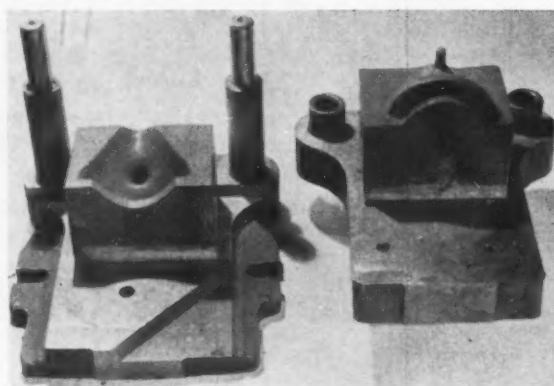


FIG. 4—Restrike die for final forming is made from plastic with fiber glass reinforcement.

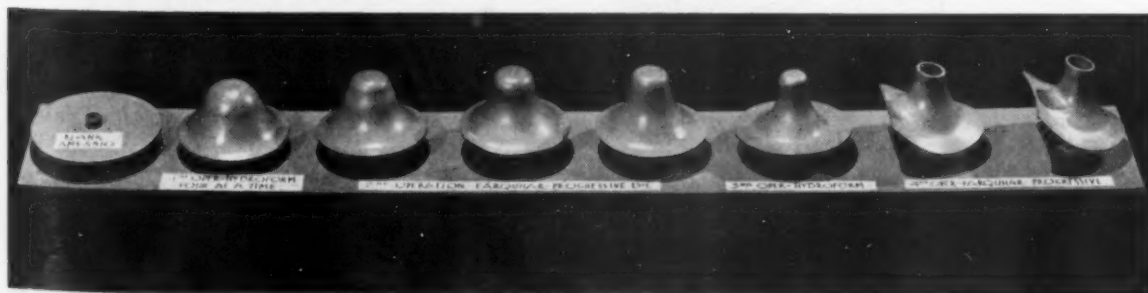


FIG. 2—Bosses are formed in series of press operations starting with an AMS 5510 blank.

In continuous production—

Shaker Furnace Simplifies of Small Parts



By W. D. Latiano
Metallurgical Editor

♦ **CONTINUOUS HEAT TREATING** of the wide variety of parts handled by the commercial heat treater calls for close coordination of men, materials and equipment. Long runs are often interrupted by short "rush" orders. Differences in part sizes, in the metals treated, and in process variables place a premium on equipment flexibility.

The Fred Heinzelman & Sons heat treating plant, located in downtown New York, heat

♦ Scheduling long and short runs of many small part orders through a continuous heat treating operation requires considerable furnace adaptability . . . The shaker type furnace is especially suited to this type operation.

♦ Movement of parts through the furnace can be readily timed to meet many specific time-temperature requirements . . . Bumping action of the shaker unit spreads parts out evenly across the hearth, assures even quenching . . . The compact furnace-shaker unit uses an improved muffle design.

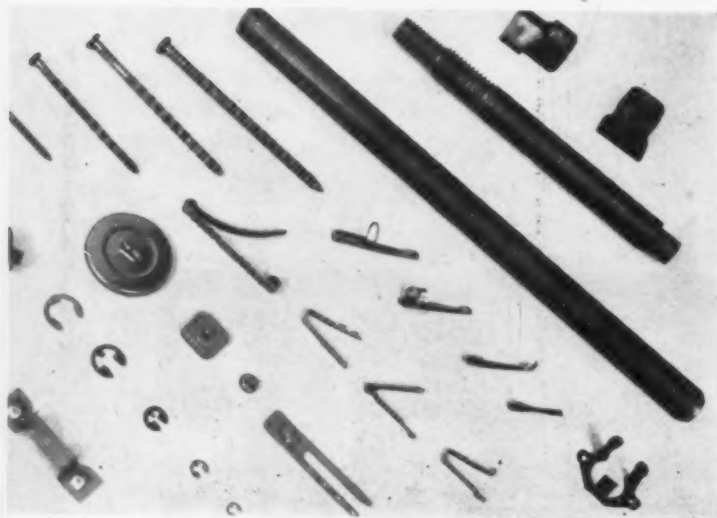
treats parts ranging from retainer disks not much larger than the head of a pin to large steel dies. Quantities vary from one piece to lots that may run for weeks. In addition, the plant has facilities for descaling, straightening, cleaning, liquid honing and sandblasting.

Many of the smaller parts processed are handled in an American Gas Furnace Co. No. 240 shaker unit. The bumping action of the shaker unit has two advantages: (1) It feeds parts through the furnace at a controlled rate. (2) It spreads the parts evenly across the hearth.

Products treated in the shaker furnace vary from small retainer disks to bolts 1½ in. in diam and 8 in. long. Parts such as tie clips, pen and pencil clips, electronic spring components, hair curler parts and various thin section springs are regularly treated in this unit.

Made of steels in the range between 1065 and 1095, these parts are often processed in a total furnace time of 5 minutes, depending of the grade of steel and cross-section. Temperatures vary from 1450° to 1525°F according to carbon content. Maximum operating temperature of this furnace 1850°F.

Because of the natural "bumping" of the hearth it is not necessary to spread work on the hearth. The parts usually distribute themselves evenly across the hearth. Greater uniformity of heating is possible and parts drop



TYPICAL PARTS treated in a shaker furnace.
Smallest is 0.156 in. in diam and 0.010 in. thick.

fies Heat Treating

off the hearth into the quench individually permitting uniform quench. The fact that pieces spread out uniformly on the hearth makes it possible to harden thin spring type parts with minimum distortion. Flat parts will lay flat and thin pronged parts do not have the weight of parts on them to cause bending when they are hot.

Bolts, studs, nuts and parts of comparatively heavy cross-section can have furnace times up to 2 hours at temperature with normal automatic operation of furnace controls. Longer furnace times are possible by manual operation of controls.

This company has hardened bolts 1½ in. in diam by 8 in. long at a rate of 550 lb per hour. Then, switching to pencil clips, production has been held to 400 lb per hour. This is possible by simple adjustment of the force and frequency of the shaker strokes.

Because of its compact design this American Gas Furnace shaker unit requires little more space than the length of the heating chamber. All the conveying mechanism except the shaker device is located inside the furnace. Overall length of furnace and shaker is 15 ft 6¼ in.

Although any type atmosphere can be used, the furnace is operated with an endothermic atmosphere. This is used for clean hardening and as a carrier gas for light cases. For Nitriding, ammonia gas is used.

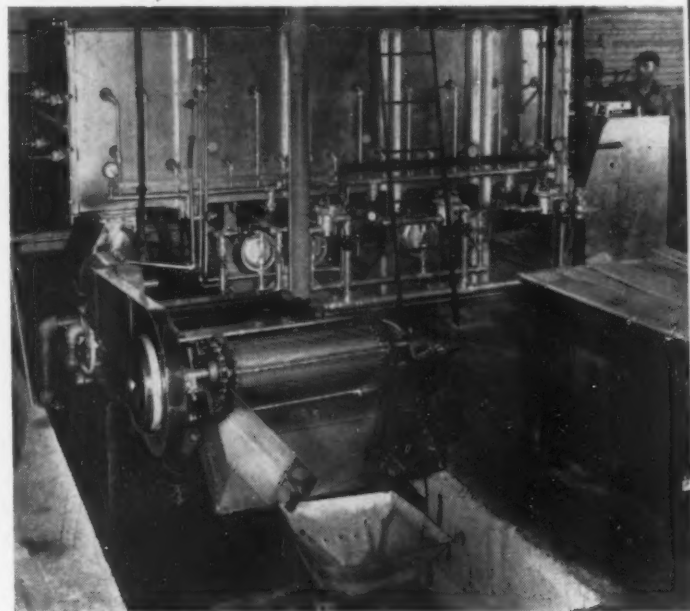
A one piece cast heat resistant alloy muffle extends from the loading end of the furnace to just above the oil level in the quench tank. A quench chute bolted to the end of the muffle extends below the oil permitting atmosphere protection through the quench.

The work moves on a heat resistant alloy hearth. This hearth is on rollers that are placed on the floor of the muffle. Rollers move in slots in the muffle sides that are as wide as the back and forward length of the stroke. The rollers serve to keep the hearth off the muffle. This is an important factor in extending the life of the muffle.

No cold work ever touches the muffle. This prevents thermal stressing and eliminates a major cause of leaky muffles. Because the hearth is off the muffle bottom, heating of the hearth is by radiation assuring uniform heating.

Uniform and rapid heating of the muffle is achieved by use of many burners firing on both sides, above and below the muffle. Ample com-

bustion space is provided in the firing chamber. Each burner has relatively small input and is sized according to its location in the furnace. Manifolding is such that the burners can be balanced out for most efficient heating.



OPERATOR hand feeds light parts into shaker furnace to prevent bending of thin sections.



SUPERVISOR inspects springs for surface appearance as parts are removed from quench.

Planning Pays Off In New Foundry Techniques



By K. W. Bennett
Chicago Editor

♦ **PRODUCTION SHELL MOLDING** of truck engine parts, begun early this year at the Indianapolis Motor Truck Div. of International Harvester, is expected to be expanded to two other plants during the coming year. Successful production casting of exhaust seal rings and exhaust pipe flanges marks another step forward in an integrated company program aimed at development of improved foundry methods.

The foundry program at International Harvester, through development and application of improved foundry methods, seeks answers to common industry problems: Greater economy in production of castings; reduction of machining costs through use of more precise casting methods. Work in this field is backed by an extensive program of research and planning.

The company's entry into shell molding reflects 5 years of thorough study and experimentation. Beyond the wider use of shell molding, plans call for more work in high pressure diaphragm and blow-squeeze molding. And during the past 2½ years, the company has been putting the finishing touches on research for blowing sand-liquid binder molds in contoured flasks. International Harvester calls its use of the shell molding process Contour molding.

Foundry engineers believe their careful advance study will later pay ample production dividends in lower part costs. To back this contention they point to their 5-year study of shell molding. They indicate an average 70 pct reduc-

♦ Based on a rounded program of planning and research, International Harvester is developing new solutions to its foundry problems . . . Shell molding, now in limited use at its truck engine plants, will soon be extended to other plants.

♦ Research includes work in high pressure diaphragm and blow squeeze molding, blowing sand-liquid binder molds in contoured flasks . . . Careful advance study has assured production profits in application of new foundry methods.

tion in machining for parts chosen to be shell molded. With growing data on use of coated sands, both cold and hot, 50 pct resin reductions are believed obtainable. Comparative studies by International Harvester of Contour molded castings and conventional green sand casting in regard to finish, chilling tendency, and relative machinability are continuing.

In many cases resin sand molds have been found by jobbers to be relatively high in cost. Resin costs must be balanced carefully against lower cleaning costs, better finishes, and reduced machining on the finished casting before a shell molded casting can be proven as cheap as a green sand casting. International Harvester believes shell molded castings, properly chosen, will cost no more than green sand from a finished casting standpoint. Ultimately 10 pct of the castings consumed by the company will be Contour molded, it is estimated.

Patterns cycle beneath dump box

One of the two Indianapolis shell molding units is a single station machine with tip-over dumping unit mounting a 21 x 46 in. pattern to produce a 3/16 to 1/4 in. thickness shell on the gas heated pattern.

The second mold unit uses eight patterns cycling beneath a single dump unit. A 100-mesh four screen type sand and 6 pct resin by volume are mixed in a Simpson muller located above the two molding machines. The muller can handle

3000 lb in a 15 minute mixing cycle and drops the sand-resin mix into a 5000 lb capacity hopper from which it is fed to the machines by screw conveyor. A 500 ton yard silo of special concrete block holds the raw sand until ready for mixing with a standard commercial phenol resin. Sand is trucked from the yard silo at present.

Preheating of the cast iron pattern, standardized at 30 x 24 in., calls for a two position heating to 450° F. Initial heating is in an infrared oven, followed by a gas flame over the face of the iron thermodie. When the sand-resin mix has been dropped onto the pattern face from an automatic rollover, the curing is done in a little under 45 seconds. The cured shell is ejected by air pushoff.

Resin seals shell halves

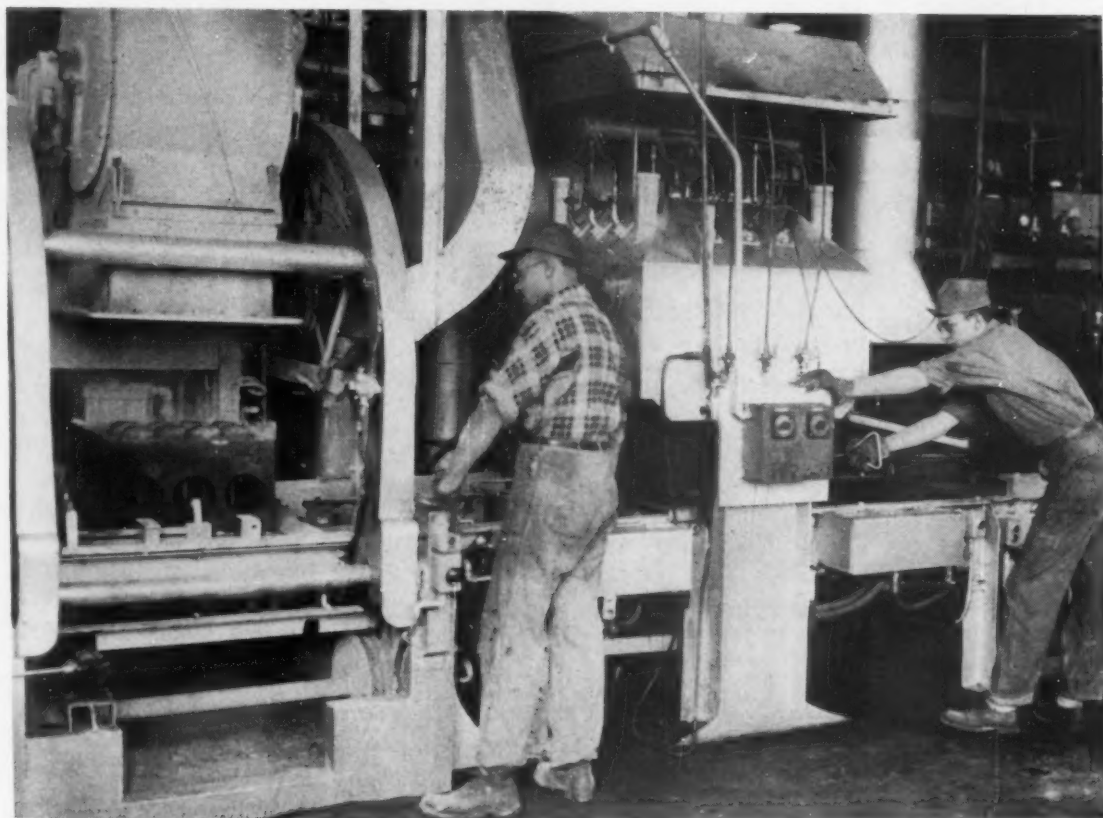
Completed halves of each mold are sealed together with a polyvinyl resin and held in an air operated press until the resin sets. Shells are then backed with conventional molding sand in the flask for most applications. With the mold still hot when the edge seal is applied, dry resin could be used and has been used at least experimentally. As a rule of thumb, company foundrymen believe the process will be economic if the casting exceeds mold weight by 1.7 times. A more conservative 2:1 casting to mold ratio has often been quoted in the past.

Molds are handled immediately after ejection without excessive warpage. Handling of the warm shell is followed immediately by sealing and pressure loading before the shell is fully hard.

Larger castings are not a cost problem if chosen carefully. On seal rings and exhaust pipe flanges, machining is eliminated entirely. Flywheel castings will be produced with no machining of the engine side of the flywheel.

The machine will handle eight patterns for truck engine parts, and the 20 x 24 in. patterns will allow the casting of 11 exhaust seal rings in one mold. It is probable that the large flywheel casting will eventually hold at 90 seconds. Beginning work required 3 minutes per mold, largely because of difficulty in maintaining pattern temperature.

The machined cast iron patterns are bolted to a steel base plate. Capacity of the machines for mold production is considerable. On the basis of early ratings, and using eight patterns, complete molds for 22 exhaust seal rings, 8 small exhaust pipe flanges, and 3 large exhaust pipe flanges could be produced in 6 minutes. Pouring would be done in conventional flasks, carried on standard pouring conveyors. Standard green sand equipment already in place is used for shakeout. While backup is presently used for casting, it is believed backup will eventually not be necessary for casting weights under 25 lb.



CONTOUR MOLDING machine produces molds for exhaust seal rings, pipe flanges. Sand resin

mix falls on hot pattern, left. Oven, center, cures mold. Operator, right, strips mold.

Versatile followers—

Hydraulic Tracers Simplify Contour Machining, Improve Accuracy In Production of Large, Complex Parts



By E. E. Baker
Vice President
National Tapered Wings
Los Angeles

♦ Hydraulic tracer controls have been used to simplify machining of complex parts and to decrease production costs in machining simple parts . . . Used with suitable templates and cams, the tracers permit greater equipment versatility . . . Simple and complex cutter head movements may be controlled with a high degree of accuracy.

♦ Success in machining integrally stiffened wing structures led engineers to study use of hydraulic tracers on standard machine tools in machining less complicated parts . . . It was found a greater quantity of both straight and contour milling work could be machined in a given time . . . Tracer accuracy helped cut the percentage of scrapped parts.

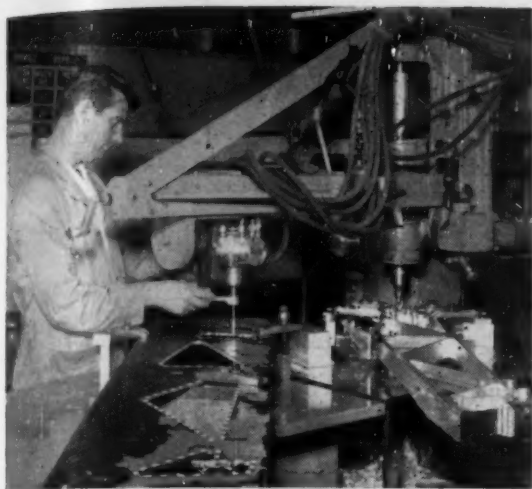
♦ **PRODUCTION ECONOMIES** in many conventional machining operations may be gained through wider application of hydraulic tracer controls. When used with suitable templates, hydraulic tracers assure close control of simple and compound cutter movements. Fewer setups, greater machining accuracy, lower operator skill requirements, and the ability to use simpler machine tools in difficult machining operations all combine to cut production costs.

The successful application of hydraulic tracers to standard machining operations at National Tapered Wings, Los Angeles, stems from experience in machining integrally stiffened wing structures. Previous experience at this plant had been with spar milling, skin tapering, and some contouring. In handling the new integrally stiffened skin, no established

machining techniques or equipment were in use.

National's engineers believed that a large planer, converted by addition of hydraulic tracer controls, would provide best results. The hydraulic tracers, by following cam bars mounted on the side of the machine would simultaneously control rise and fall of the milling head.

In preliminary test cuts, some difficulty was experienced in meeting the close tolerance requirements for the milled skin sections. This was solved by use of 180° True-Trace hydraulic tracer heads. Milling accuracy attained is attributed to a flow-test and grind sequence used in processing the tracing heads. This process assures a ± 0.0002 flow balance across the valve ports. Consistent and close tracer accuracy permits use of most tolerances allowed on a preci-



MACHINING ALUMINUM section was simplified by installing hydraulic tracing controls on Pratt & Whitney 30-in. hand duplicator. Tolerances on production runs are held to 0.002 in.

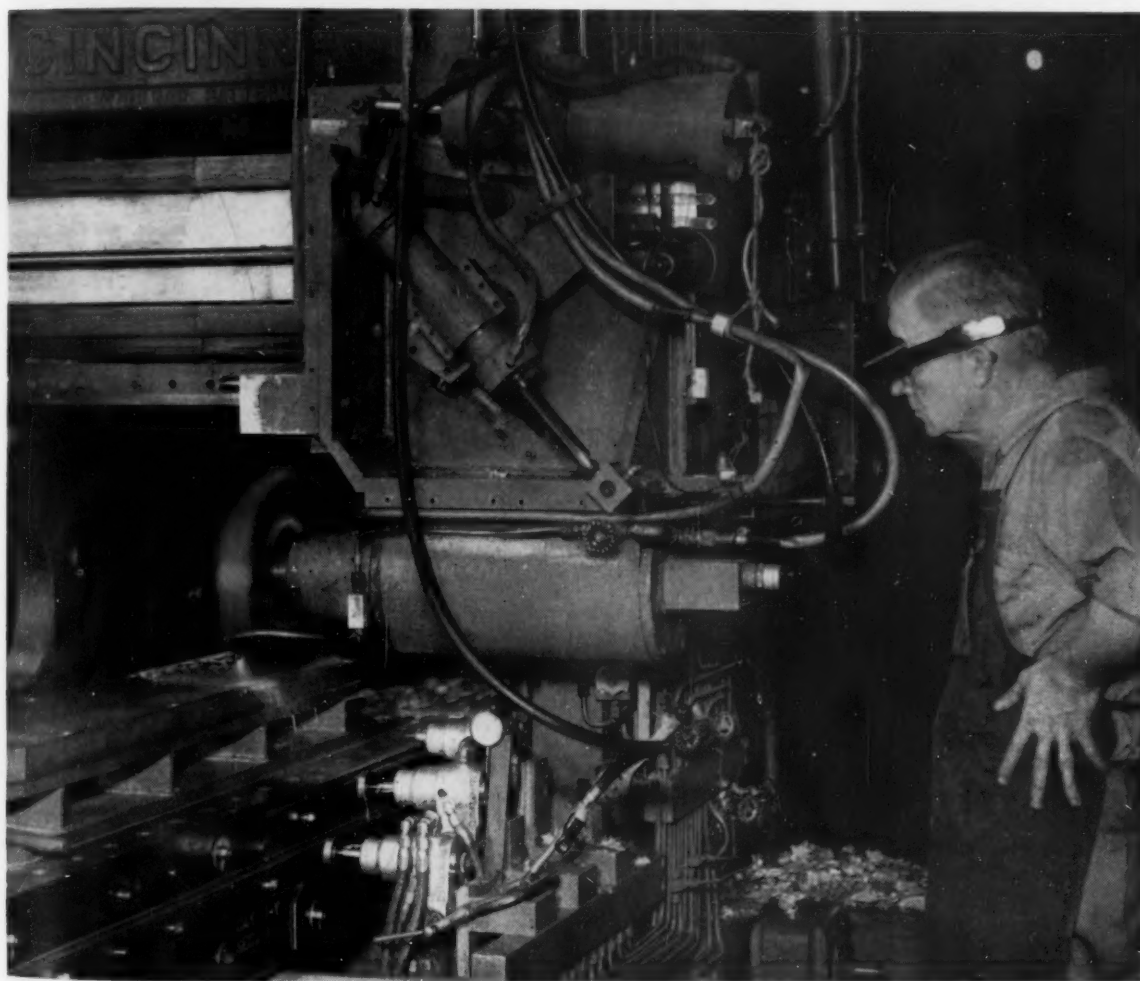
sion part for normal tooling and machining inaccuracies. Success with the 180° tracer led National's engineers to explore the merits of True-Trace 360° tracers.

These, controlling any two motions at 90° to each other, such as traverse and transverse, were applied to several 30-in. Pratt & Whitney hand duplicators. After tracers were installed it was found the machines could produce a greater quantity of both straight and contour milling work to closer tolerances than had been possible without tracers.

One part formerly required over 6 hours to machine by conventional methods. After converting to a 360° tracer, production time was cut to less than 1.7 hours. Quality improved and scrap decreased. On another job, machining time was reduced from 16 to 8 hours. A third part was machined in 64 pct of the original time.

All of these parts were held to tolerances of 0.003 in. Tooling costs when using the 360° tracers are low since templates, which can be made of aluminum or similar material, are relatively simple to make.

This experience suggested that considerable advantage could be gained by wider use of tracers for contour and profile machining. It was believed that hydraulic tracing controls could be used to convert practically any ma-



RISE AND FALL, horizontal movement and twist of cutter are duplicated simultaneously as tracer

follows cams attached to planer. Three tracers for automatic following are used.

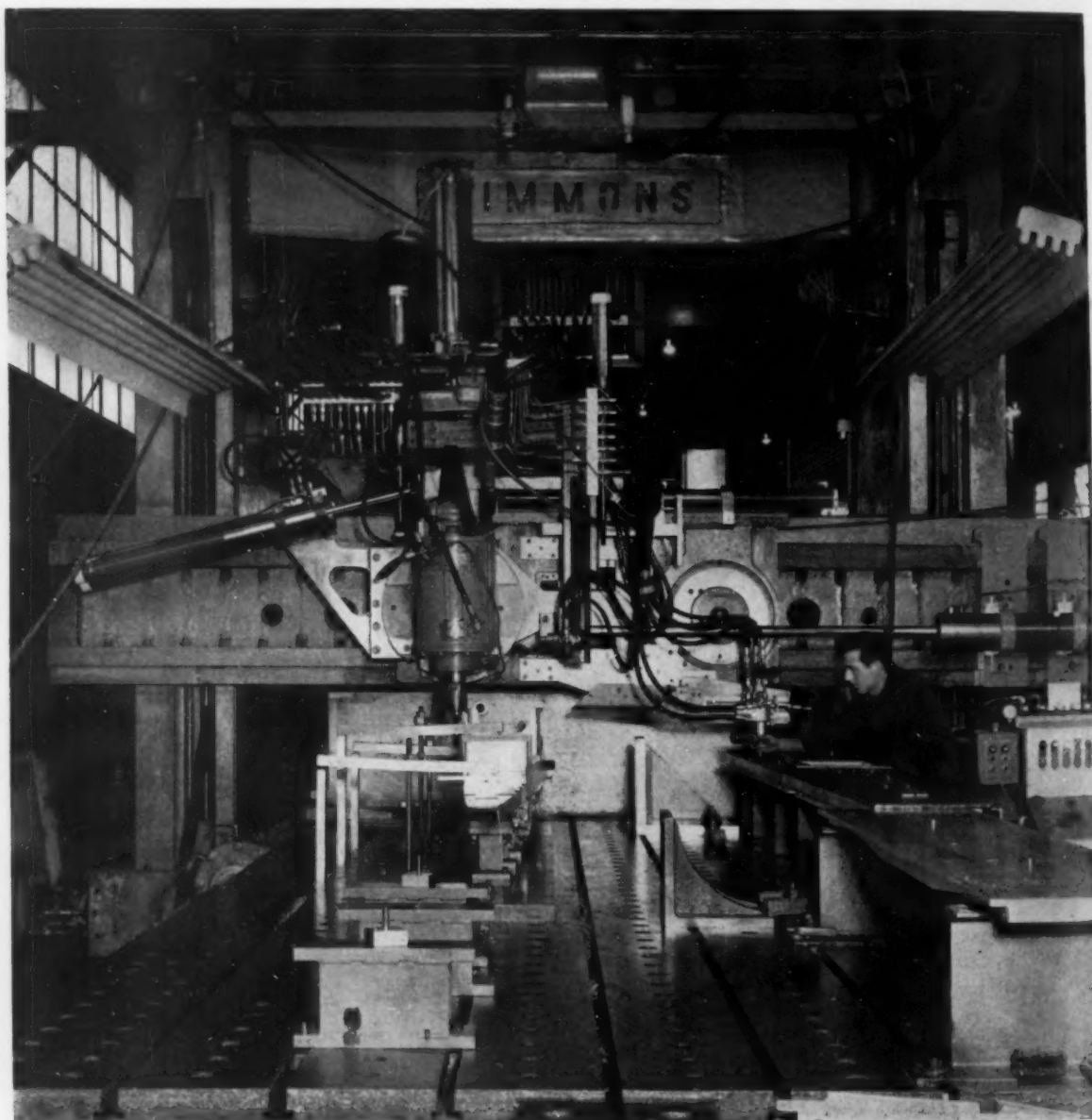
**Much standard production was
machined faster with tracers . . .**

chine into a precision high production duplicating unit. These would then be capable of precision tracing control on any one slide element or on any combination of slide elements. With this type control it would be possible to machine practically any contour or profile required.

These ideas were applied with considerable success. A Cincinnati Planer with a 40 in. x 10 ft table was equipped with three 180° tracers to simultaneously control continuous rise and fall, horizontal translation and twist. The tracers followed a coordinated series of cams mounted on the side of the planer. The system automatically controls the path of the cutter to within a few thousandths of an inch.

One unique combination of tracers permits simultaneous or separate control of four basic motions of a Simmons planer with an 8 x 20 ft table. A 360° pencil tracer controls longitudinal motion of table and horizontal motion of the cutting head on the cross rail. Three other 180° tracers automatically control rise, fall and twist of the cutting head.

Many simple and compound straight milling cuts could be made in less time and to closer tolerances while obtaining good finishes by tracing, it was found. Parts which consist primarily of straight cuts and perhaps a few radii, and connected combinations of straight line cuts are usually traced. The percentage of scrapped parts is materially reduced. At the same time production is considerably increased because fewer setups are required, and climb-cutting may be used to increase chip load.



FOUR BASIC TRACING motions can be used singly or in combination on this 8 x 20 ft planer

equipped with hydraulic tracers. Tracers make the machine a highly versatile duplicator.

Powder blends help—

Powder Processes

Solve Tough Metal Removal Problems

By R. S. Babcock, Laboratory Div. Head, Cutting & Scarfing Processes, Linde Air Products Co., New York

Part II

- ◆ Use of iron powder in the reaction zone of an oxyacetylene flame increases the flame temperature, melting refractory oxides which form when oxidation-resistant materials are cut . . . Cutting oxygen attacks the base metal, permitting progressive cutting.
- ◆ Although iron powder is generally used, a blend of iron and aluminum powders aids in cutting heavily incrustated spills, buttons and slag deposits, and some nonferrous metals and alloys.
- ◆ Another wide field of application for the powder processes is in conditioning of stainless steel ingots, slabs, blooms and billets by scarfing . . . Passes up to 2½ in. wide can be made using manually-operated equipment.

◆ **OXIDATION RESISTANT** materials can be cut quickly and economically, using an iron powder in the reaction zone to increase the temperature of the oxyacetylene flame and to provide a fluxing action. In addition to cutting, the powder processes are used for scarfing, gouging, grooving, washing and lancing.

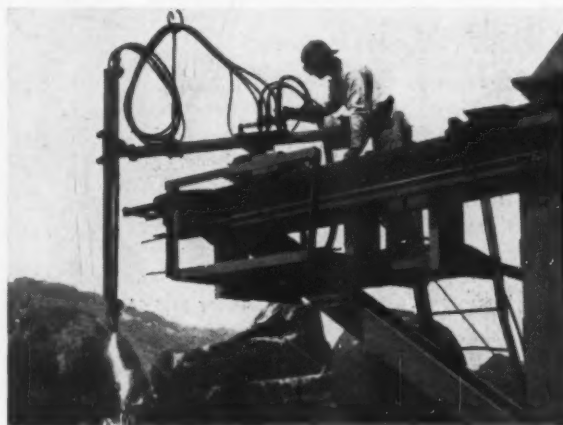
During a cutting operation, the powder passes through the preheat flames where it is heated to ignition temperature before reaching the cutting oxygen stream. Such external powder feed has certain advantages. First, it results in higher cutting speeds and permits thicker sections to be cut. Second, it makes more efficient use of powder, resulting in lower powder consumption. Also, since less powder is required, the flow of the conveying air stream can be reduced. This in turn reduces dilution of the cutting oxygen stream by the nitrogen in the compressed air.

Satisfactory cutting depends a great deal on the characteristics of the powder. The ideal powder should be dry and free-flowing, otherwise it will sinter and cause very erratic cutting action. It must also liberate a large amount of heat during combustion. The products of combustion should provide a fluxing action, but should not be irritating or toxic. It must be economical and not excessively abrasive.

Numerous powders and mixtures have been

tried. Of these, iron powder has the best characteristics for general use. It liberates less heat than ferromanganese or aluminum, but it produces no refractory oxide. The resultant slag is highly fluid and is suitable for fluxing. Its products of combustion (finely-divided iron oxide and some metallic iron) have a very low order of toxicity. The powder is essentially a low-carbon iron powder.

Although iron powder is satisfactory for most applications, special blends are required for some applications, particularly those involving oxidation-resistant materials other than



SKULL CUTTING is put on a production basis by use of multidirection powder-cutting rig.

clean stainless steels. These materials include: heavily incrustated openhearth spills and buttons, cast iron skulls and slag deposits on ladle spouts; also, nonferrous metals and alloys as nickel, Inconel, Monel, brass, copper, aluminum and Hastelloy B.

Granular sodium bicarbonate or powdered aluminum blended with an iron powder such as Oxweld No. 200 is an effective mixture for cutting openhearth scrap with severe slag and cinder incrustations. A mixture of powdered aluminum and Oxweld No. 200 powder also works well on nonferrous metals and concrete. Although aluminum powder is more expensive than sodium bicarbonate, it is more effective and can be used for a wider range of materials. It also creates more heat in the reaction zone.

Some materials preheated

The maximum thickness of material that can be powder cut depends on its composition and uniformity. In one case, a cast iron press base measuring 48 in. thick by 8 ft wide by 12 ft long was cut into four sections. In another, a 100-ton cast iron machine base was cut into five sections. Possibly the thickest section that has been powder cut was a large ladle button measuring 96 in. at its thickest point.

The technique of powder cutting is similar to that of oxyacetylene cutting with some exceptions. In cutting air-hardening materials, such as straight chromium steels, preheating between 500° and 700°F prevents cracking. Preheating Monel and nickel to about 500°F improves the quality of the cut. Best results are obtained if the nozzle is held at least $\frac{3}{4}$ in. from the surface of the metal being cut.

In addition to stainless steel and cast iron, powder cutting is used extensively in scrap yards to reduce heavy sections to furnace charging sizes. This is usually done on a production basis, using mechanized equipment. In skull yards, powder cutting is very effective in reducing ladle, skulls, thimble buttons, salamanders and steel spills which contain a high percentage of slag and incrustations.

Downtime greatly reduced

Compared to conventional lancing techniques and blasting, powder cutting of heavy scrap is about twice as fast and much less costly. In one instance, five thimble buttons were reduced in 3 hours. This job was done after lancing and blasting failed to even crack the buttons.

In rebuilding blast furnaces, powder cutting saves on materials and reduces downtime considerably. Combined with some lancing, powder cutting was used to remove a 125-ton salamander without disturbing the carbon-block lining. As a result, the furnace was put into operation 15 days sooner than was otherwise possible. It meant a production gain of 12,000 tons of pig iron and saved about \$75,000 in



POWDER CUTTING can be used for refractory materials. Here, 14-in. thick reinforced concrete is being cut horizontally at 1½ ipm.

relining costs. Total cost of the job was about \$3,800.

Powder cutting of nonferrous scrap is another large field of application. A 12-ton bronze ship propeller being reduced to scrap presented a big problem since attempts to sever two of the three blades from the hub by other methods had failed. To make matters more difficult, this



MECHANIZED scarfing permits passes up to 10 in. wide at speeds ranging from 20 to 50 fpm.

Powder stack-cutting of stainless steel sheet and plate is unaffected by dirt and slag. Only simple clamping is needed . . .

bronze alloy contained 40 pct zinc which flakes and causes a crust. With powder cutting, using a 60-40 iron-aluminum powder mixture, the propeller was reduced to suitable sizes for remelting in about 4 hours.

In another case, manganese-bronze propellers were reduced for remelting at a substantial saving in time and material. Chipping, drilling, blasting and arc melting had been tried, but by each of these methods the severing time was excessive. The blades varied from 6 to 8 in. at their thickest points and the lines of cuts were from 30 to 40 in. long.

Firebrick among materials cut

A similar job was that of cutting 4 in. thick manganese-bronze flywheels. To reduce one wheel to furnace charging size formerly required 10 power saw blades and 2 days to do the job. Powder cutting did the job in a small fraction of the original time at a great saving in materials.

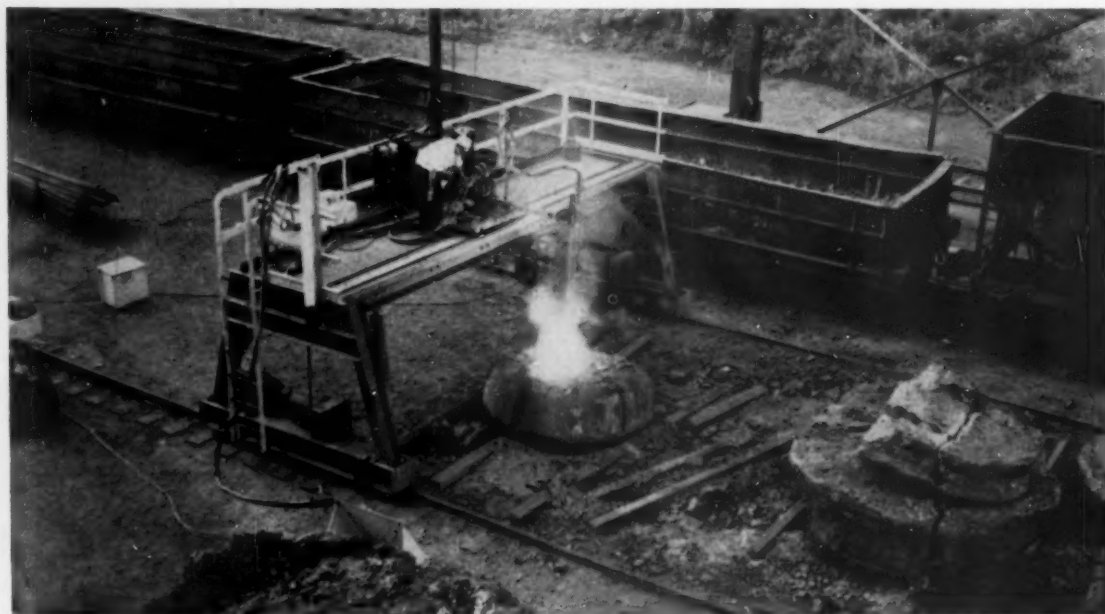
To cut up cast iron sections of an old steam engine in a blooming mill to make room for electric motors, 40 hours were allotted to do the job. Once the job had started, it actually involved three times the amount of cutting first anticipated. Yet, with powder cutting, the 3 to 12-in. thick sections were cut in 32 hours. Because the first sections were cut so quickly, it was then decided to completely dismantle the sections. Again, powder cutting saved more than two days in completing the job.

Slabs of nickel, Inconel and Monel up to 6 in. thick are being cut at speeds of more than 4 ipm. Concrete and firebrick are other materials that can be powder cut. In one case, heavily reinforced concrete piers 14 by 30 in. were cut at a speed of $1\frac{1}{2}$ ipm with a horizontal cutting setup. Previously, the job took several hours of pounding with a heavy jack-hammer whereas powder cutting did the job in 20 minutes.

Layers of aluminum-soaked refractory brick 12 to 24 in. thick have also been removed from furnace bottoms by powder cutting. The job was done in 3 hours as opposed to 4 to 7 days by pneumatic chipping. Total cost of the job was about 15 pct of the previous cost.

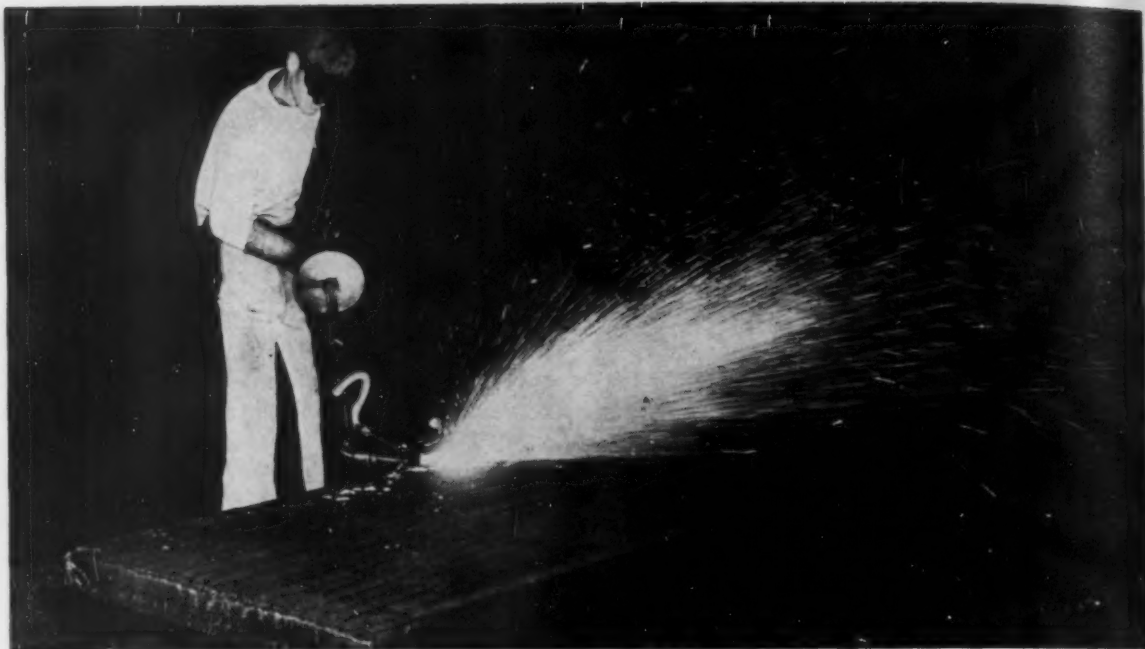
Powder stack-cutting of stainless steel sheet and plate offers all the advantages of stack cutting of carbon steel sheet by conventional oxyacetylene methods. Only simple clamping is necessary. Dirt and slag between the sheets do not affect the progress of the cut. Plates loosely stacked due to warpage can be powder cut without clamping. In some cases, cutting time is reduced as much as 40 pct over other methods which require clamping.

One example of powder stack cutting is in the making of baffle plates for chemical washers from Type 304 stainless steel. The 10-gage sheets are stacked 12 high and held together with "C" clamps. Using a $\frac{1}{4}$ -in. preheat flame length and a powder flow of 15 lb per hour, cutting speed is $7\frac{1}{2}$ ipm. The only finishing



GANTRY RIG spans dump area where heavy scrap cutting is done. Maximum thickness of ma-

terial that can be powder cut depends on composition. A ladle button 96 in. thick has been cut.



POWDER SCARFING is a fast, effective way of conditioning stainless steel ingots, slabs, blooms

and billets. Scarfing takes about one-fourth the time required for grinding.

required is a light grinding to remove surface oxides from the cut edges.

Conditioning of stainless steel ingots, slabs, blooms and billets by scarfing is another large field of application for the powder processes. The overall time for powder scarfing is about one-fourth that required for grinding.

The smoothest scarfing passes were obtained when the powder was introduced into the oxygen stream within the nozzle. From the standpoints of cost and rolling results, this method of powder introduction was satisfactory for blooms and billets. However, a condition known as "shiners" occasionally appeared on stainless steel sheet rolled from powder-scarfed slabs. This condition was attributed to partially burned powder remaining at the trailing edge of the reaction zone, resulting in a high ferritic concentration after rolling unless removed with the furnace scale.

Surfaces scarfed with external powder-feed nozzles are somewhat rougher than those pro-

duced with internal powder-feed nozzles, but the surfaces are entirely satisfactory for rolling and "shiners" are eliminated. Moreover, scarfing speeds are as much as three times faster than with internal powder feed. At present, nozzles with external powder feed are used by stainless steel producers for conditioning slabs.

With external powder feed, it is also possible to obtain increased surface coverage per pass using slotted scarfing nozzles. Passes up to 2½ in. wide can be made in a single pass with manually-operated equipment. In a mechanized setup, passes up to 10 in. wide are possible.

Scarfing done at 20 to 50 fpm

In manual scarfing, the blowpipe should be held so that the cutting oxygen stream impinges on the surface at about a 40° angle. Also, the nozzle should be within 5° to 10° of the direction of the pass. Preheating between 500° to 700°F is required for air-hardening materials such as the straight-chromium steels. The chrome-nickel stainless steels do not require preheating.

Scarfing speeds vary, depending on whether or not the material to be scarfed has been preheated. Preheated steels are scarfed at speeds ranging from 30 to 50 fpm whereas cold steels are scarfed at speeds of 20 to 30 fpm. Speeds are slower on high-alloy steels. Slower speeds are also used where deep defects require removal of more metal.

Conditions for Powder Scarfing

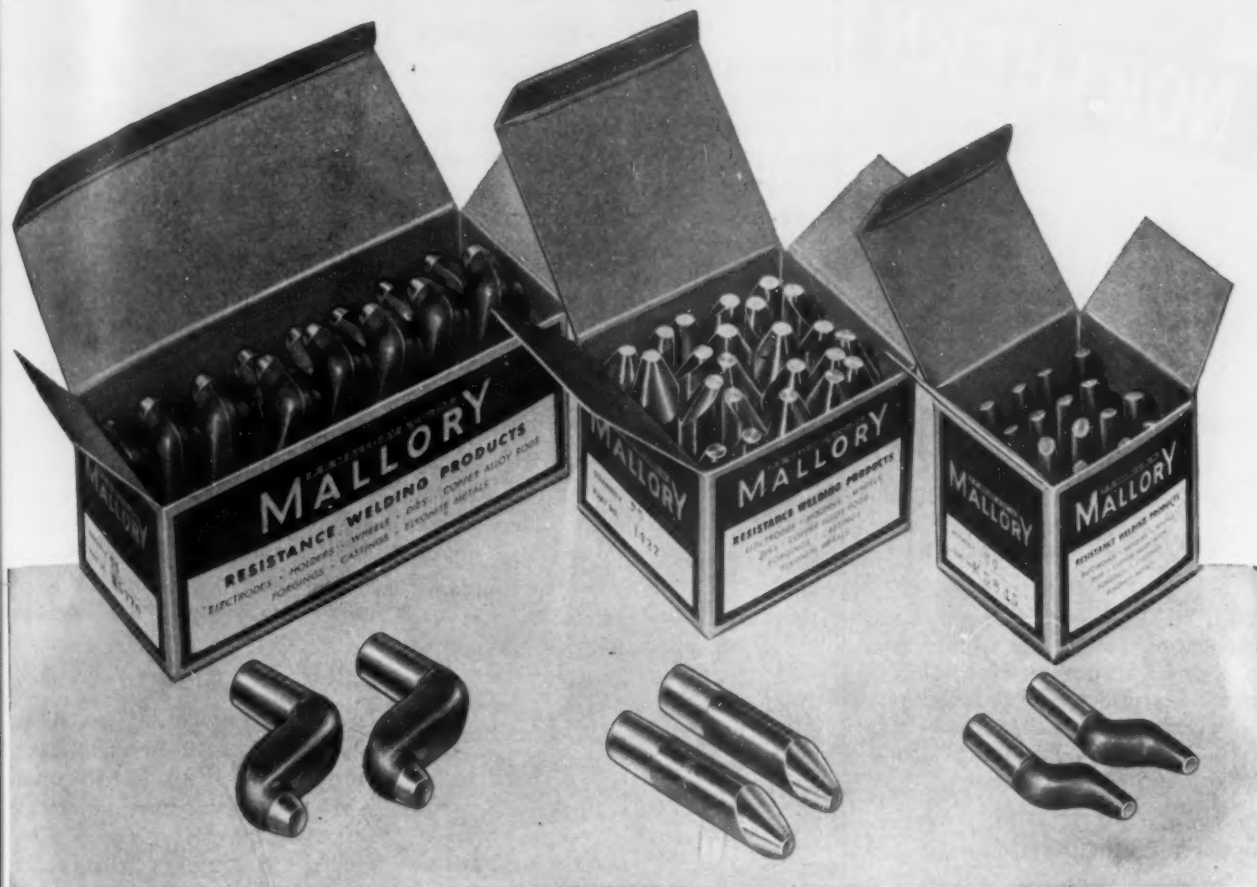
18-8 Stainless Steel

Nozzle to work distance.....	2½ in.
Impingement angle.....	30°
Lateral angle.....	5° to 10°
Speed.....	8 to 14 fpm
Powder consumption, oz per lb of metal.....	5
Oxygen consumption, cu ft per lb of metal.....	15 to 35
Acetylene flow.....	90 cfh
Oxygen flow, at 62 to 78 psi.....	2500 to 2900 cfh

Nozzle size	Oxygen pressure, psi	Acetylene pressure, psi	Powder flow, lb per hr
20	50-80	8-12	15-30
44	65-75	8-12	30-75

POWDER PROCESSES—Part I of this three-part article appeared in the July 22 issue of The Iron Age. Part III will appear in the Aug. 12 issue.

Save Delivery Time, Save Welding Costs...



with Mallory Standard Stock Resistance Welding Electrodes

You save two ways when you order from Mallory's warehouse stocks of hundreds of different resistance welding electrodes.

First, you save the time and cost of special tooling and production. Mallory standard stock includes electrodes in such a broad range of shapes, lengths and tapers that in most cases your order can be shipped the same day right off the shelves.

Second, you get more welds per dollar with Mallory electrodes. You benefit by over 25 years

of experience in the development of specialized alloys and superior designs. With the Mallory fluted water hole, for example, you get far more effective cooling, longer electrode life, less down time for dressing or replacement . . . at no increase in cost.

Get in touch with your Mallory Distributor or write to us in Indianapolis. For the price of a postage stamp, you may be able to make real savings in time and money . . . make better welds at lower cost.

In Canada, made and sold by Johnson Matthey and Mallory, Ltd., 110 Industry Street, Toronto 15, Ontario

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Metallurgical—Contacts • Special Metals and Ceramics • Welding Materials





Look Overhead...

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"NORTHERN" — the name you see on overhead electric cranes in industrial plants of all kinds wherever you may be, because NORTHERN — since 1899 — has been a leader in industrial crane design and construction.

The name "NORTHERN" represents faithful adherence to uncompromising design, quality controlled machining, and closely inspected fabrication. "NORTHERN" Cranes and Hoists have an extra margin of safety — give dependable, fast service under the most rugged, emergency conditions — are notable for fine, standard-type electrical equipment and controls for precise manipulation and quick, easy maintenance with minimum downtime.

Let us send you Crane Bulletin SE-108-A
Hoist Bulletin H-112

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Technical Literature: Catalogues

Protective coatings

Publication simplifies the complex problem of selecting the correct protective coating for various industrial installations. Complete data on nine different coatings are presented in the catalog to assist the user in selecting the one best suited to his needs. A protective coating properties chart is featured in the catalog which presents complete information on each coating in concise form. *Celcote Co.*

For free copy circle No. 1 on postcard, p. 119.

Heat exchangers

Bulletin describes the operation of the Niagara Aero Heat Exchangers used in cooling or controlling temperatures of industrial liquids. It shows the operation of this equipment by means of diagrams and examples of application by installation photographs. *Niagara Blower Co.*

For free copy circle No. 2 on postcard, p. 119.

Gas analyzers

Two models of gas analyzers based on the principle of thermal conductivity for quantitative analyses of gas mixtures having one variable, afford a means of making continuous analysis of corrosive, moisture or dirt-laden industrial gases. These new models are put out by Charles Engelhard Inc., and are described and illustrated in a booklet. The booklet includes principles of operation and specifications. *Charles Engelhard, Inc.*

For free copy circle No. 3 on postcard, p. 119.

Chuck fixture

Information on the Skinner non-rotating 8, 10 or 12-in. air chuck is contained in a bulletin put out by the company. The air chuck is self-centering and available with either two or three jaws. It can be used on drilling and milling machines, for assembly operations and for other bench and machine installations. *Skinner Chuck Co.*

For free copy circle No. 4 on postcard, p. 119.

FREE AIDS

FOR YOUR COPY

Money-saving products and services are described in the literature briefed here. For your copy just circle the number on the free postcard, page 119.

Strippable coatings

Manufacturer of Thermo-Cote Strippable Protective Coatings have made available a folder discussing the uses and advantages of its product with illustrations. Also included are directions for applying Thermo-Cote. *Bischoff Chemical Corp.*

For free copy circle No. 5 on postcard, p. 119.

Atlanta, Georgia

Booklet gives facts and figures about Atlanta, including statistics on population, transportation facilities, communications, government activities, electric power and fuel and water supply. Atlanta's importance as an industrial center in the South is shown through charts. *Industrial Bureau, Atlanta Chamber of Commerce.*

For free copy circle No. 6 on postcard, p. 119.

Maintenance

A bulletin, *Five steps to Productive Maintenance*, provides detailed information on how to organize an electrical maintenance program to meet the needs of automation. Steps discussed included gathering equipment data, determining extent of routine maintenance, establishing a routine operating control system, evaluation for critical maintenance and establishing a critical maintenance program. There is a steady movement toward increased mechanization. The "think" needed to keep production flowing is being shifted from the production worker to the maintenance worker. *General Electric Co.*

For free copy circle No. 7 on postcard, p. 119.

and New Bulletins

Materials handling

Steel boxes with lap joints, a stand and reel for handling steel coils, a new type nesting stacking box and a skid box with a side door providing easy access to materials without removing stacked boxes are some new items described in a catalog on materials handling equipment. The company designs and builds all types of materials handling equipment for pick-up, loading, moving, dumping or storage. *Palmer-Shile Co.*

For free copy circle No. 8 on postcard, p. 119.

Coated abrasives

A colorful illustrated booklet is offered to serve as a pictorial guided tour through the Armour plant. Featured in the booklet are pages on manufacturing, quality control, application and warehousing. The modern plant, located at Alliance, Ohio, utilizes the latest methods and newest equipment. Jumbo rolls are produced and then converted into specific products for industrial use. *Armour & Co.*

For free copy circle No. 9 on postcard, p. 119.

Pattern selector

New pattern selector by Rigidized Metals Corp. gives complete specification data on 26 Rigid-Text metals patterns. A turn of the wheel shows a photo of each textured metal pattern with an arrow indicating direction of width. Uses for Rigid-Text metals are suggested on the back and include applications in various industries such as automotive, aircraft, appliance, architecture and public transportation. *Rigidized Metals Corp.*

For free copy circle No. 10 on postcard, p. 119.

Riveting sets

The latest Hi-Shear Rivet Tool Catalog is now available featuring all standard models of riveting sets, bucking bars, rivet removal tools and surface flushness gage. An up-to-date chart of available rivet guns and squeezers has been included. Also included in the booklet are diagrams and descriptions of straight gun sets, offset gun sets, full notched gun sets and other equipment. *Hi-Shear Rivet Tool Co.*

For free copy circle No. 11 on postcard, p. 119.

Turn Page

Proved Under PUNISHMENT

STANDARD CYLINDER TUBING

"Mirror Finished" to precision tolerances, it's used in automobile shock absorbers, power steering, hydraulic pumps . . . without further sizing or finishing.

Here's a busy part of an automobile shock absorber that's built for brutal punishment. It's Standard's modern "mirror-finish" Cylinder Tube. So that it won't weaken or leak under punishment, every inch of this tubular "toughie" must measure up to exacting specifications—in cylinder finish . . . in I.D. tolerances as close as .001" . . . in extreme uniformity of wall thickness and concentricity . . . in internal pressure resistance, to shocks up to 9000 P.S.I. The elimination of broaching or further processing of any kind effect significant savings for our customers in product assembly.



As you see here, the engineering involved behind the application of tubing to your product is *more than skin deep at Standard*. Our engineers will gladly show you why in helping you with your tubular application—whether it involves a simple structural or mechanical member . . . or a precision application.

Send for 8-page folder on all Standard products or see Sweet's Design Catalog.



MAKE "STANDARD" YOUR SOURCE FOR—

- WELDED MECHANICAL TUBING
- WELDED STAINLESS TUBING
- BOILER AND HEAT EXCHANGER TUBING
- EXCLUSIVE "RIGIDIZED" PATTERNS

STEEL TUBING SIZES: ½" O.D. TO 5½" O.D. — .028 TO .260 WALL.
STAINLESS SIZES: ¼" O.D. TO 4½" O.D. — .020 TO .154 WALL.



More efficient two-blow cold heading of the above Leveling Screw was achieved when the manufacturer switched to Keystone "Special Processed" Wire.

The excellent flow properties of this superior cold heading wire provided the desired upsetting and die forming qualities necessary to withstand the severe displacement of metal during the two blow operation. Longer die life, increased production, lower per-unit cost and a higher quality finished product were the end results.

Keystone is doubling its production capacity on "Special Processed" wire to meet the ever increasing demand of new customers while continuing to serve its present customers. Keystone is prepared to help solve any of your industrial wire problems. Your inquiry is welcomed.



FREE TECHNICAL LITERATURE

Hydraulic oils

Hydraulic oils for Denison equipment is the subject of a booklet put out by the company. The booklet stresses the importance of selecting the right oil. Performance properties, physical specifications and viscosity are discussed along with other properties. Illustrations, charts and diagrams are included for further information. *Denison Engr. Co.*

For free copy circle No. 12 on postcard, p. 111.

Railroad gages

An illustrated booklet is available on Pratt & Whitney AAR standard railroad gages. The gages are grouped under three classifications: Standard Inspection Gages for use in yards and shops for checking new equipment or wear life remaining in used equipment; master gages to determine whether standard inspection gages are within acceptable tolerance limits; and limit wear master gages to determine if worn standard inspection gages are still within permissible limits. *Pratt & Whitney Div.*

For free copy circle No. 13 on postcard, p. 111.

Electric oven

Model 100-Type 1 electric oven features extremely close temperature control ranging from 200°-900° F. Heating space is 15x15x36 in. The new oven is ideal for laboratory use, annealing of magnesium parts, removal of hydrogen embrittlement after plating spring steel, and other heat treating applications that require accurate temperature control. *Jersey Sheet Metal Products, Inc.*

For free copy circle No. 14 on postcard, p. 111.

Safety equipment

Catalog of industrial safety equipment put out by the Mine Safety Appliances Co., has nine sections. Each section is devoted to a phase of safety in industry, illustrating equipment and how and when to use it. Included in the book are sections on: respiratory protection, head-eye-face protection, first aid materials and repair parts. *Mine Safety Appliances Co.*

For free copy circle No. 15 on postcard, p. 111.

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You can do better...with

B·RIGHT·ON®

SOCKET SCREW PRODUCTS

You can't keep production up when socket screw problems are getting you down. Even such a small thing . . . one screw that doesn't start quickly or drive home correctly . . . perhaps a shipment that doesn't arrive on time . . . can hamper a fast-moving production line.

For screws that fit your needs in every way . . . quality, sizes, specifications and service . . . you can do better with B-Right-On Socket Screw Products. Best materials, most modern production methods, careful inspection and a tradition of service to users through selected mill supply houses assure your complete satisfaction.

We'll submit descriptive literature or samples for your most critical examination. No obligation, of course; just specify types and sizes.

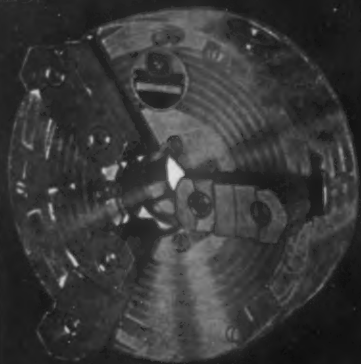
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New plastic demonstrators
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Now you can SEE these built-in extras in actual operation. Ask your Horton Distributor NOW!

**HORTON
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Windsor Locks, Conn.

TECHNICAL BRIEFS

POWER: Low Cost Reactors

Two models aimed at the low priced field meet industry's training, research needs . . . Enriched uranium sulfate in water serves as fuel and moderator . . . Cost about \$150,000.

Two relatively low-cost atomic research reactors, adapted for use in training badly needed personnel for the nuclear power industry, as well as for conducting basic nuclear research and development, have been placed on the market by the Atomic Energy Div. of The Babcock & Wilcox Co.

The modified versions of the declassified "water boiler" and "swimming pool" reactors developed at Los Alamos, Oak Ridge and other installations of the Atomic Energy Commission will sell for a firm price, ranging from \$100,000 to \$150,000.

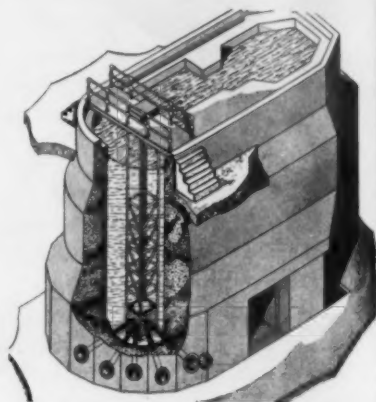
Rated at 200 to 400 kw

The water boiler reactor is a semi-homogeneous unit comprising a solution of enriched uranium sulfate in water as fuel and moderator, and a separate cooling system of unique design. Its rated power is from 200 to 400 kw, but it can be operated at any power below this level.

Uranium sulfate solution is contained in the lower half of a cylindrical vessel with spherical bottom. The vessel has a 10-in. ID and is 3 ft high. The shell is 1/16 in. thick and made of Type 347 stainless steel.

Boron control and safety rods extend down into the core (solution) from above. The core is located in the center of an approximately four-foot cube of graphite reflector which, in turn, is surrounded by a four-inch carbon steel thermal shield. A 5-ft extension of the graphite reflector on one side serves as a thermal column.

The cooling system comprises U-shaped type 347 stainless steel cooling tubes placed so that they dip down into all parts of the fuel solution and maintain the fuel



Low cost reactor . . .

temperature at a constant level below the boiling point. The coolant is ordinary water.

Has High Flexibility

The swimming pool reactor has a high degree of flexibility and maximum power of about 1000 kw. The core is heterogeneous, with a minimum critical mass of 2.75 kg.

The pool is approximately 10 ft wide by 20 ft long by 25 ft deep, and is ordinarily equipped with eight 6-in. and two 8-in. beam ports.

The unit can be operated with a variety of core patterns with or without a partial or full reflector of graphite or BeO. Control is accomplished by rods integrated with the core suspension and actuated by a simplified drive mechanism. Instrumentation has also been simplified.

WANT MORE DATA?

You may secure additional information on any item briefed in this section by using the reply card on page 119. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

INHIBITOR:

Better corrosion protection, simplified application gained.

Volatile corrosion inhibitors have rapidly proved their industrial value during the past few years. Recently one company developed an additional member in this family of inhibitors which, while providing both quick and long lasting protection, is also simple to apply.

The new amine nitrate compound, Shell Oil Co.'s VPI-250, a white powder about as fine as talcum, will not clog a flocking gun, and can be applied with a squeeze bottle, a salt shaker, or similar device.

Dissolves In Alcohol

Where spraying or dusting is impractical, the powder may be dissolved in alcohol and applied in solution. Other methods of appli-



Used in flocking gun . . .



. . . To protect metals



Customers now demand strapped pallets that cut shipper's cost 50%!

A Signode unitizing method that can work for you!

Signode's Packaging Engineers have an uncanny way of adapting basic *unitizing principles* to help shippers cut packaging costs!

These products are hard-to-pack grinding wheels. Manufacturers formerly shipped them in wooden boxes—4 wheels to the box. Signode Engineers bundled four stacks of 6 wheels with steel strapping and bound them into ONE easy-to-handle pallet of 24 wheels—at a 50% saving in packaging costs!

This Signode-developed pallet pack proved so popular that customers of almost all grinding wheel makers have requested that wheels must now be shipped on steel strapped pallets!

If you are interested in cutting packaging costs in your own plant, send for our folder showing 6 BASIC WAYS OF UNITIZING.

SIGNODE Steel Strapping Co.

2623 N. Western Ave., Chicago 47, Ill.

In Canada: Canadian Steel Strapping Co. Ltd., Montreal • Toronto
Offices coast to coast—Foreign Subsidiaries and Distributors World-Wide

ARCOS FOR FINEST QUALITY WELDS



Cooking up some profitable benefits for food processors

Processing tomato juice or apple sauce . . . vinegar or chicken soup—cooking kettles *must* be "stain-proof". Stainless welds in particular must be chemically "right", physically sound. On both counts, because of careful quality control, Arcos Stainless Rods and Electrodes produce welds with these requirements.

If corrosion resistant welds are essential to the processing equipment you make or use, you'll profit with Arcos. Here's why: Expensive trial-and-error selection is avoided. There's a properly formulated grade for each job. Costly rewelding is eliminated. The rigid quality standards in manufacture assure you consistent and dependable weld metal. And Arcos technical service adds extra promise of the results you want. On *any* corrosion resistant welding problem, get in touch with your Arcos distributor or Arcos Corporation, 1500 S. 50th St., Phila. 43, Pa.



WELD WITH
ARCOS
STAINLESS RODS AND ELECTRODES

TECHNICAL BRIEFS

cation are currently being tested.

The inhibitor possesses several advantages in fighting corrosion. It does not have to be applied directly to the surface it is to protect. If a quantity of the powder is simply dropped into an enclosed space, its vapors will penetrate even into hard-to-reach areas and condense on all surfaces.

The minute crystalline film does not have to be removed from equipment before it is placed into operation.

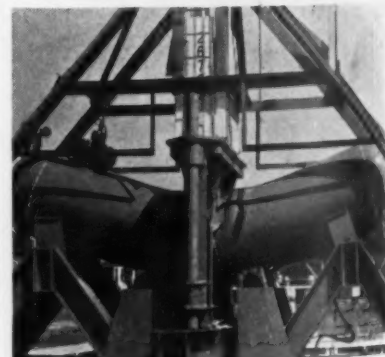
TEST:

Pressure vessel material tested in elaborate setup.

Industry, military and officials of many national regulatory groups were on hand recently to witness testing of a new alloy designed for use in pressure vessels. The successful tests were staged jointly by United States Steel Corp. and the Chicago Bridge & Iron Co. at the latter's Birmingham, Ala., plant. The alloy: Carilloy T-1.



Burst under pressure . . .



Drop weight test . . .

TECHNICAL BRIEFS

STEEL:

Electric ingot process makes steel in the ingot mold.

A new approach to the making of super alloys uses granulated alloying materials and strip for the basic metal. Alloying materials are fed through hollow consumable electrodes formed from the strip to water cooled mold where the materials are melted to form the ingot. No refractories are used and the molten metal is protected from the atmosphere by a synthetic flux.

The process, developed by the M. W. Kellogg Co., subsidiary of Pullman Inc., Jersey City, N. J., is known as the electric ingot process. Advantages claimed for this method are continuous melting and casting, progressive solidification, uniform analysis, minimum segregation, flexibility, low cost of molds per ton and ability to make small as well as relatively large ingots.

Sound, Pipeless Ingots

The ingots are said to be sound, pipeless and give a high yield of usable metal. Ductility is improved over regular casting methods. A disadvantage of the method is that no scrap materials can be used and the granulated form of the alloying materials is more expensive than the standard forms.

Kellogg produces three principal super alloys: Timken 16-25-6; Westinghouse Discaloy 13-26-3-1.8; and Allegheny Ludlum A-286.

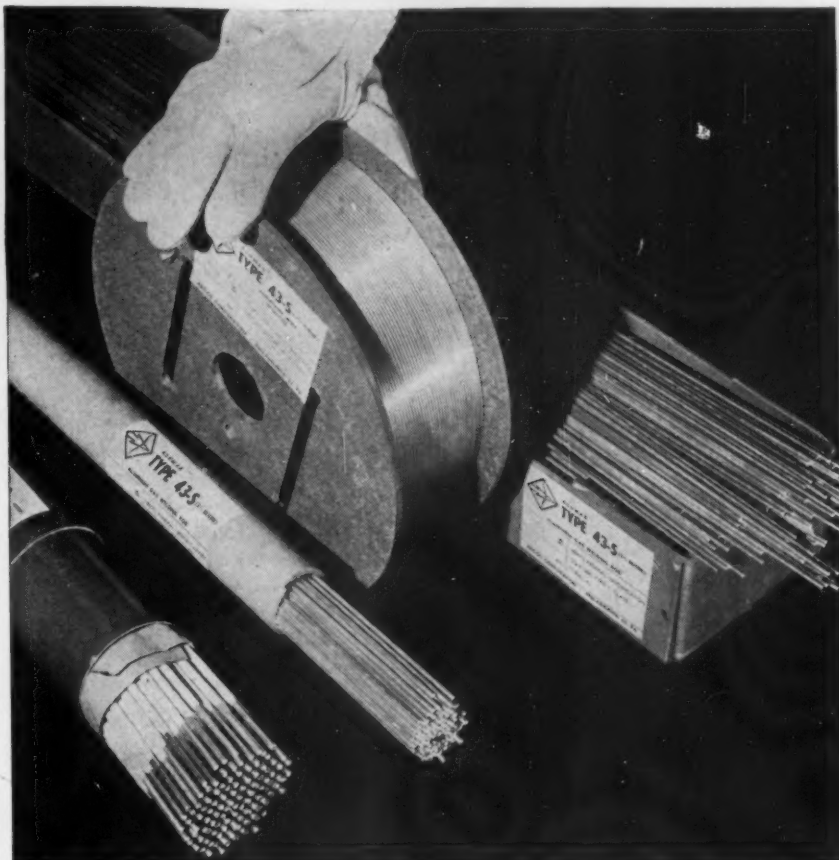
One of the basic materials used is strip supplied in coils. For iron-base alloys, strip usually is low-carbon rimmed steel. For nonferrous and alloys containing a small percentage of iron, strip of some appropriate material such as nickel is used. Strip usually is cold-rolled in gages and widths suitable for forming into the desired size electrode.

Formed Into Electrode

The strip is passed through a tube-forming machine where it is formed into a cylindrical electrode with butted edges. The tubular electrode then passes through a

ARCOS

FOR FINEST
QUALITY WELDS



NOW AVAILABLE...these **NEW** Arcos products for welding aluminum

Are you looking for a way to reduce costs and improve results on welding aluminum? Then consider how Arcos may help you:

First, with *new products*. Arcos now offers coated and bare aluminum rods and electrodes in a variety of grades. Also available in coiled, cut and spooled forms. This means accurate selection for each job. Second, with *quality controls*. To get sound welds there's no substitute for the high Arcos standards applied to raw materials and manufacturing procedures. Third, with *technical service*. Helping you get low-cost, trouble-free aluminum welds is a prime responsibility of Arcos. This help is based upon years of experience with weld metallurgy.

To get started, write today for an Arcos Aluminum Application Chart. Arcos Corporation, 1500 S. 50th Street, Philadelphia 43, Pa.



WELD WITH ARCOS

ALUMINUM RODS AND ELECTRODES



PAINTS BODIES WITH RANSBURG

Electro-Spray



Automatic electrostatic spray enables Studebaker to apply a heavier and more uniform primer surfacer while giving them a net saving of 1.81 per body in paint and direct labor. Not only is the Ransburg method providing the desirable increase in uniform film thickness, but it is enabling Studebaker to paint more bodies per hour with the substantial savings in paint and labor over the former hand spray method.

The heavier, and enduring,
first coat on Studebakers
provides the necessary base



for the superior finish . . . a finish which
resists all kinds of exposure conditions,
such as combinations of warm and
humid climate, and prolonged bright sun exposure.

Whatever your product may be—large or small—if your production volume justifies conveyorized painting, chances are that one of the RANSBURG electrostatic processes can do the job better, and for less. Write or call for data and detailed information on numerous and varied installations.

Ransburg ELECTRO-COATING CORP.
Indianapolis 7, Indiana

RANSBURG

TECHNICAL BRIEFS

contact shoe where it picks up the current for melting.

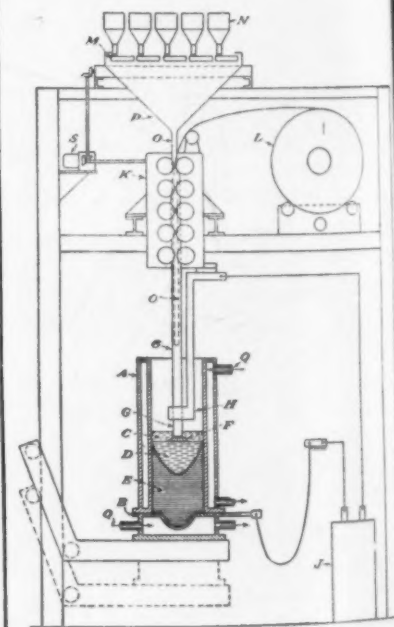
The electrode extends into the mold below the slag blanket. The location of the current discharge below the bottom of the contact shoe is maintained at a constant distance throughout the melting process. When a coil is nearly consumed another is welded to it while melting is in progress.

How Melting Starts

The melting is started by supplying a small quantity of mixed crushed alloying materials to the center of stool. The mold and stool assembly is then raised until the end of the electrode contacts the pile of materials. A supply of dry synthetic flux is added to the mold

KEY TO ELECTRIC INGOT MACHINE

- A Water-cooled mold
- B Water-cooled stool
- C Molten flux
- D Molten metal
- E Solid metal ingot
- F Current discharge
- G Tubular electrode, consumable
- H Contact shoe
- J Power supply
- K Tube-forming machine
- L Coil of strip
- M Alloy-metering devices
- N Alloy hoppers
- O Alloy conduit
- P Collecting hopper
- Q Water inlet
- S Motor drive





WHAT DO YOU WANT TO KNOW ABOUT

DIE BLOCKS and FORGINGS

How they are made? How they are tested? How to make dies last longer? How to heat treat? The many uses of forgings? This 92 page booklet tells all about die blocks and forgings. In addition there are over 20 pages of helpful tables and measures including a section on standard practices and tolerances for impression die forgings.

This booklet is offered free to users of die blocks and forgings to help in the selection of quality products . . . what to look for and what to expect from your supplier.

Please send your request to the nearest Finkl office listed below on your company's stationery giving your name and position.

You can profit from our experience in the manufacturing of die blocks and forgings. The quality control in each step of processing from our own electric steel furnaces to the finished product shows in the field in greater performance and longer life. Call on Finkl for the finest in die blocks and forgings.



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HEMLOCK 4-3333 • ST. PAUL 1: 445 Endicott Bldg. Cedar 1600 • COLORADO SPRINGS: 534 West
Cheyenne Road. MEIrose 2-0431 • SAN FRANCISCO 5: Monadnock Bldg. EXbrook 2-7018 • SEATTLE 4:
3104 Smith Tower. SENeca 5393 • BIRMINGHAM: PO Box 1606. 7-1603 • KANSAS CITY 6: 950 Dierks
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3-2141 • Eastern warehouse EAST CAMBRIDGE 41: 250 Bent Street. ELliot 4-7650

A. Finkl & Sons Co.
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FORGINGS • DIE BLOCKS • ELECTRIC FURNACE STEELS

August 5, 1954

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NEW BOOKS:

"Dechema - Werkstoff - Tabelle," Second part, Third edition, edited by E. Rabald and H. Bretschneider. Standard reference book records the behavior of some 100 constructional materials used in chemical engineering in the presence of approximately 1000 chemical agents. They range from Abietic Acid to Benzilic Acid. Sheets dealing with Ammonia and the Atmosphere should prove of particular interest. Dechema, Deutsche Gesellschaft für chemisches Apparatewesen, Frankfurt am Main, Germany. 100 p.

"Protection Against Betatron-Synchrotron Radiations up to 100 Million Electron Volts," National Bureau of Standards Handbook. Attempts to supply recommendations made by the National Committee of Radiation Protection as they apply to high energy electron accelerators of the betatron and synchrotron types. Government Printing Office, Washington 25, D. C. 25¢. 52 p.

"Heating Ventilating Air Conditioning Guide," 32nd edition. Special feature is new chapter on Residential Summer Air Conditioning. Included are new data on methods of obtaining local relief in hot humid environments, new information on recent developments in air and gas cleaning, new tables on steam requirements of process equipment and more detailed data on characteristics of pipe and tube. Large ASHVE Psychrometric Chart is included. American Society of Heating and Ventilating Engineers, 62 Worth St., New York 13. \$10.00. 1616 p.

"American Labor and the American Spirit," by Witt Bowden. Analysis centers around three major themes: unions, labor-management relations and productivity. Bulletin traces historical background and present status of labor unions, analyzes the type of unions and their inter-relations and the role of collective bargaining. U. S. Bureau of Labor Statistics, 341 Ninth Ave., New York 1. 40¢. 66 p.

to cover the entire stool and material.

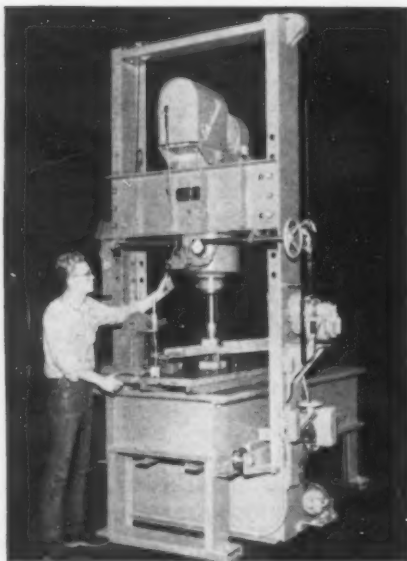
Current is turned on and the tube-forming machine is started. The dry flux blanket melts and the alloy-making process is under way. As the level of the bath rises in the mold, the mold retracts from the machine and continues until the desired length of ingot has been made.

Because the strip has no alloy content it is necessary to add alloy

materials to the melt to produce the grade of steel desired. The alloying is accomplished by metering each one through separate metering devices. These are driven by the same motor that drives the tube-forming machine thus synchronizing the rate of alloy addition with the rate of electrode consumption.

The crushed alloy materials are stored in individual bins.

When the mountain wouldn't come to Mohammed



Tradition says that the mountain didn't come when Mohammed commanded, so he resolved the situation by going to the mountain.

The same strategy makes the Dake Movable Frame Press unique among presses. Instead of moving the work under the press, the press is moved over the work. The frame moves longitudinally and the work-head moves laterally or vertically to any position over the worktable.

The advantages of this arrangement are many. For example, at left a Dake Movable Frame Press is used for straightening aircraft forgings. Once the forging is mounted on supports, and gauges have been placed, pressure can be applied at any desired point without disturbing the setup.

Support points can be spread to the extreme edges of the large table for work on long or irregularly shaped pieces. Work too heavy or awkward to handle manually, can be set on the table with an overhead crane, and the press moved into position.

Dake movable frame hydraulic presses can be electric or air powered, and are available in 25- to 300-ton capacities. Write for Bulletin No. 269.



Send for Big New Catalog

DAKE ENGINE COMPANY
602 Seventh St., Grand Haven, Mich.

Please send me a copy of Dake Catalog No. 129

Name

Company

Address

City Zone State

HEAT TREAT:

Salt bath furnace cuts rejects in shaver head production.

Some 30,000 electric shaver heads are austempered each day with a reject rate of less than five-hundredths of one per cent, at Schick, Inc., Stamford, Conn.

Austempering, compared with the conventional oil quench and temper method previously used, has reduced rejects to the point where \$50,000 is saved annually. The austempering line is estimated to have paid for itself in 3 to 4 months of operation.

Use High-Carbon Steel

Shaver heads, the outer head 0.003 in. thick and the inner head 0.006 in. thick, are stamped from special high carbon steel. The outer head has 128 slots in the $\frac{1}{4}$ by $1\frac{1}{8}$ in. cutting plane. With such delicate shapes, distortion cannot be tolerated—particularly since the inner head oscillates 20,000 times per minute in contact with the outer head.

To hold distortion and hardness within closer limits, reduce rejects due to cracking, increase ductility of the heads, and streamline material handling, a new method of heat treating was sought. After investigating several possibilities a salt bath isothermal quenching furnace, produced by Ajax Electric Co., Philadelphia, was installed.

Heat Treat Cycle Times

This 60kw furnace, working dimensions 10 ft long by 2 ft wide by 22 in. deep, was installed between the austenitizing bath and the rinse tank.

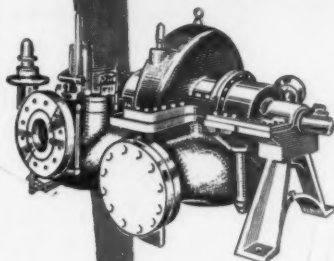


Salt bath cuts rejects . . .

For DEPENDABILITY



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Erie Fasteners are in wide use by the nation's leading builders of Industrial Turbines.

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These Erie Products prove their quality every day in the railroad, chemical, petroleum and automotive industries; on farm, construction and industrial equipment and heavy machinery. Send your design and material specifications to us . . . we will make for you the Correct Fastener for the Job.



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Lansing Stamping Co.
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MATERIALS ROUNDUP

PLASTICS:

High strength plastic solves tough corrosion problem.

A high strength plastic reinforced with fiber glass, has both good corrosion resistance properties plus the strength to withstand high temperatures. Replacing steel pipe it is resulting in considerable saving of manhours and downtime.

Ninety feet of 12 in. rigid plastic pipe has reduced problems of maintenance men at Hooker Electrochemical Co.'s Niagara Falls, N. Y., plant. The pipe has successfully withstood extreme corrosive conditions with no signs of deterioration.

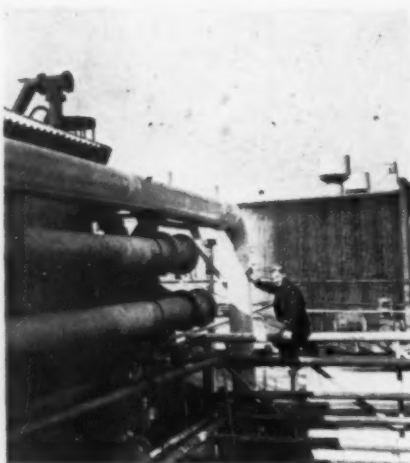
Pipe Is Flame Resistant

The new pipe is made of Hetron, Hooker's flame-resistant polyester resin, reinforced with glass fiber. It was fabricated by Atlas Mineral Products Corp., Mertztown, Pa., in 12 ft lengths with T sections and elbows.

This pipeline carries waste products from a muriatic acid absorber unit to a neutralizing scrubber system. The waste products are a highly corrosive mixture of wet HCl gas, wet chlorine gas, organics and air, with temperature to 140°F.

Good Impact Strength

In addition to the flame-resistant feature of this rigid thermosetting pipe, other advantages include bet-



Withstands corrosion . . .

FOR MORE DATA ON MATERIALS

More information on any item reported in this section may be obtained by using the reply card on page 119. Indicate the page on which the item appears and note exactly the information wanted.

ter impact, bursting and collapse strength; freedom from sagging for horizontal installations or absence of elongation for vertical uses, when transferring hot products or during warm weather.

During installation butt joints are sealed by wrapping with glass fiber cloth saturated with the liquid Hetron. Hetron was also brushed on the cloth surface. As soon as the resin set or cured, it formed a solid bond with the glass cloth and with the pipe itself.

IRON ALLOY:

Foundry material designed for abrasion resistance.

Special problems of abrasion resistance faced in shot blasting machines and pneumatic chip handling systems have led to development of a new extremely hard, abrasion resistant iron alloy. Developed especially to combat abrasion in its severest forms, the alloy can be heat treated to 700 Bhn, it is reported.

Typical applications for the alloy, developed by Taylor-Wharton Iron & Steel Co., High Bridge, New Jersey, are in those parts subject to continued severe abrasion such as augurs and related parts which work in silica particles, grizzly disks, and forming dies.

The alloy, Tisco 150-Y, is reported to have a life expectancy of two to six times other alloys used for the same purposes. Reductions both in the number of replacements and in downtime have helped reduce maintenance costs.

MATERIALS ROUNDUP

DESIGN:

Substitute materials make good, improve product.

Improved product design in Bard Mfg. Co.'s furnaces has resulted through its efforts to solve materials shortage problems. The new materials used are aluminum foil, faced with fibrous glass.

Originally, the Bryan, Ohio, company insulated the side panels of its furnaces by building double steel walls with a dead air space between. A shortage of sheet steel made it necessary for Bard to conserve its supply by changing its design.

New Design Clicks

The new design using aluminum foil faced fibrous glass for insulation proved so superior to the old design that the "emergency" redesign is being retained.

Metal side panels are painted on the outside with a baked enamel and on the inside with an aluminum paint except in the adhesive bonding area, which is bare degreased steel. A fast-drying, rubber-based adhesive, EC-104, made by Minnesota Mining & Mfg. of Detroit is spray applied to the large fibrous glass pad only. The pad is placed into contact with the metal panel within 15 seconds.

Quickly Applied

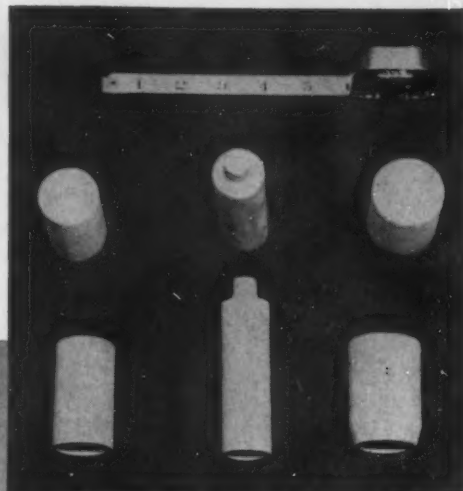
Time required to apply the adhesive to a single pad is 10 to 15 seconds. An experienced spray gun operator applies a uniform coat of adhesive to each pad. Two other employees lift the sprayed pad from



Spray adhesive on . . .

Small

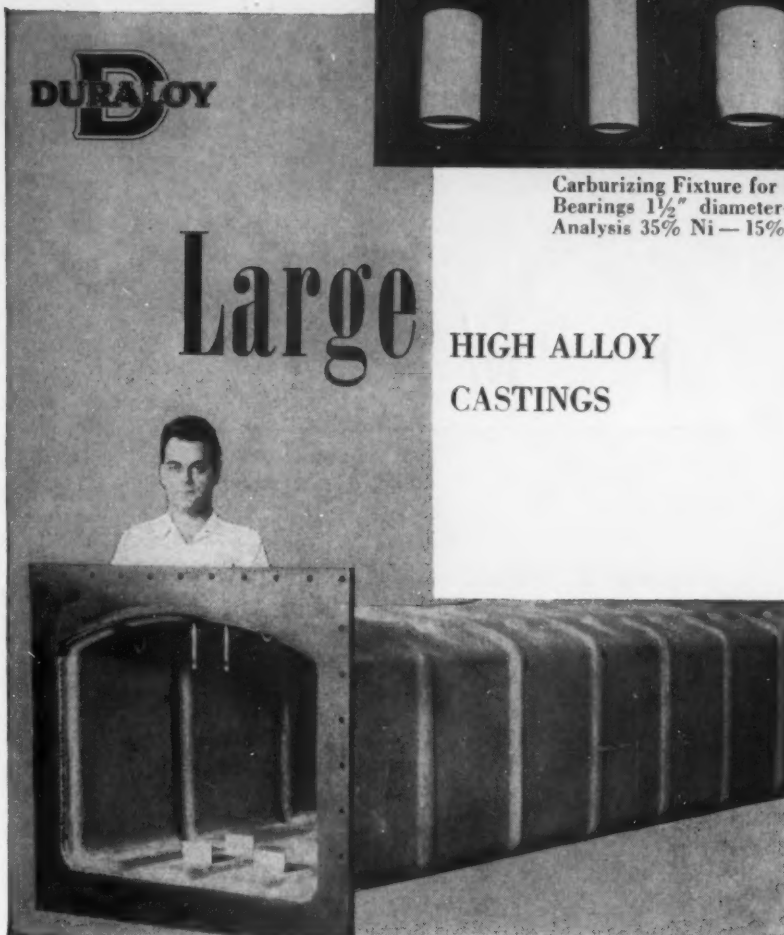
HIGH ALLOY CASTINGS



Carburizing Fixture for Ball Bearings 1½" diameter—Analysis 35% Ni—15% Cr

Large

HIGH ALLOY CASTINGS



Muffle for Continuous Strip Annealing 12' 6" long—Analysis 38% Ni—18% Cr.

LARGE or small DURALOY, can do it! These are just typical examples of the work moving through our foundry. Some of these castings are designed for heat resistance, some for corrosion resistance, some for abrasion resistance; all are cast by experienced foundrymen. All are carefully tested in our up-to-date laboratory.

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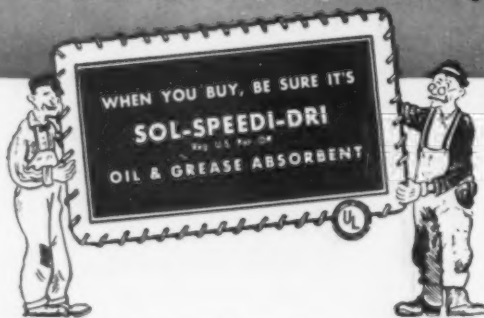


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MATERIALS ROUNDUP

the stack, turn it over and press it into place by hand. Two small metal clips hold the upper edge of the pad. Production rate attained by the three operators is approximately 100 pads per hour.

The reflective aluminum sheet and the fibrous glass cut the inside 250°F temperature to 150°F at the adhesive line giving a comfortable outside panel temperature in normal operation.

FATIGUE:

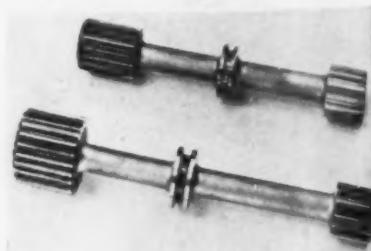
Precipitation hardening stainless makes better pump shaft.

Aircraft pump shafts subject to quickly changing loads plus rapid acceleration and deceleration posed a materials problem recently for Denison Engineering Co. of Columbus. Denison Engineers solved the problem through use of a precipitation hardening stainless steel.

Originally the two shafts were made from 4140 steel. In service, however, the shafts failed after a comparatively short time due to fatigue. In an effort to remedy the problem several materials were tried. An answer was found in Armco's 17-4 PH stainless steel.

One shaft operates under 35 hp at 4500 rpm. Maximum torque is 600 in.-lb, and shear section is set at 2000 in.-lb. The second shaft operates under 60 hp at 4500 rpm. Maximum torque is 1000 in.-lb, and shear section is set at 3800 in.-lb.

Under test conditions, the 17-4 PH stainless steel went 30 hours before failure. It exceeded the usual limit of ten million reversals.



Fatigue problem solved...

THE IRON AGE

NEW EQUIPMENT

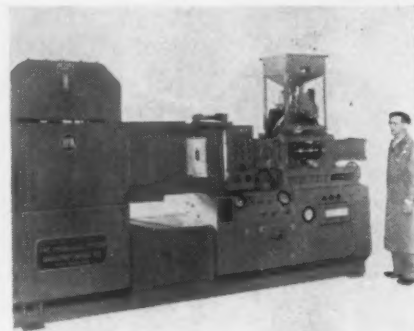
New and improved production ideas, equipment, services and methods described here offer production economies... for more data use the free postcard on page 119 or 120

Develop new injection molding machine

Designed for production of thin-walled containers of the type used for packaging, a new plastics injection molding machine will produce at the rate of 400 per hour. The new machine features a straight-line full-hydraulic mold clamp with fast closing and opening speeds. Automatic slowdowns

prior to mold contact, at mold breakaway and during ejection of molded parts are included in the machine cycle. Maximum mold clamp capacity is 150 tons. The machine has a daylight opening of 20 in., mold mounting space of 15 x 20½ in. *Hydraulic Press Mfg. Co.*

For more data circle No. 30 on postcard, p. 119.



Rotary table has finger tip control

A new type rotary table, capable of being revolved by the "flick of a finger" has recently been developed. The Air-Lift table is completely self-contained and has no complicated pieces to assemble or misplace. It is a big time-saver when more than one surface of a piece has to be machined. The table contains a collapsible index

pin which eliminates play or lost motion resulting from wear. The table is quickly and easily revolved by letting air into the base of the platen, raising the table about 0.001 in. The air acts as a bearing permitting the table to be easily turned. *Giddings & Lewis Machine Tool Co.*

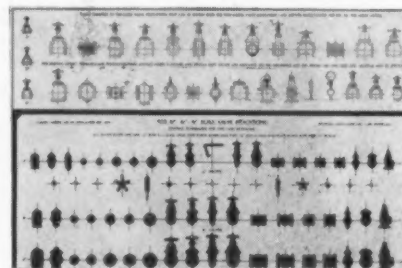
For more data circle No. 31 on postcard, p. 119.

Cassel valve indicators cut time and cost

Drafting templates cut time and cost in drawing standard and special duty valves; are accurately made to scale for industrial and commercial pipe line drawings. Small valve indicator No. 255 and large valve indicator No. 257 are

used for ¼, ¼ and ½ in. scale, for indication of any type valve, with variable pipe connections. They are made of rigid Vinylite that stays flat with non-glare and non-slip surface. *Graphic Indicator Co.*

For more data circle No. 32 on postcard, p. 119.



Rotor-brazing technique speeds production

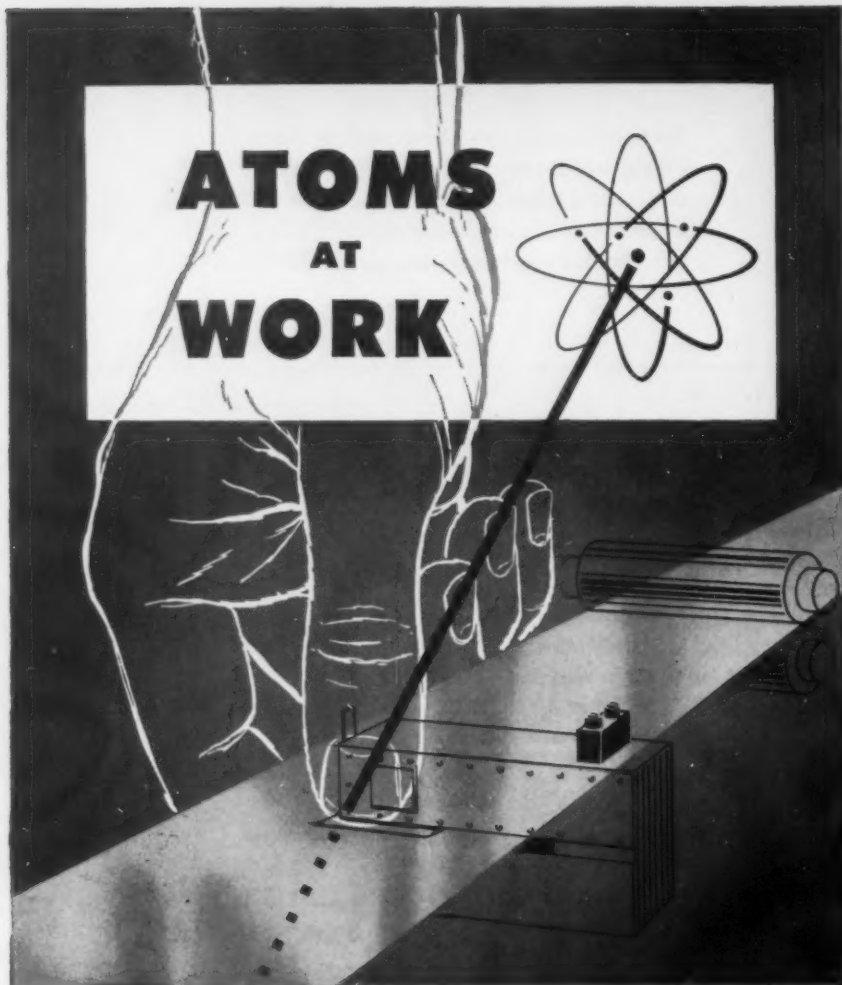
Specially designed Superheat burners are being used to braze 64 copper bars to the end ring of a rotor for an industrial electric motor in less than 5 minutes. Floor to floor time, including loading, heating, cooling, unloading, is only 15 minutes as compared with 1½ hours for other methods. The work rotates within an adjustable ring of 14 burners. Each is in effect a small jet furnace in which premixed air-gas is burned. The hot

products of combustion issue forth at high velocities through a slot in the burner. Localized heating is accomplished at high speeds, and all copper bars are brazed simultaneously. Brazing alloy can be preplaced instead of hand fed. A Combustion Controller provides both physical and chemical control over combustion reactions. *Selas Corp. of America.*

For more data circle No. 33 on postcard, p. 119.

Turn Page





AT WALLINGFORD STEEL

At Wallingford, harnessed atoms precisely control steel thickness and assure important improvement in uniformity . . . *automatically*. Here, radioactive isotopes of strontium or ruthenium demonstrate their superiority over mere man. Electronic continuous gages check strip, ranging down to .002" and to tolerances as close as .0001", without touching the metal to mark or otherwise affect it. *Man alone is unable to control steel thickness so accurately . . . so fast!*

This practical application of atomic energy to improve our quality control is another reason why you can be confident that Wallingford will meet your most rigid specifications for stainless steel strip and tubing *exactly* . . . another reason for arranging to use Wallingford's ultra-modern facilities *soon*.



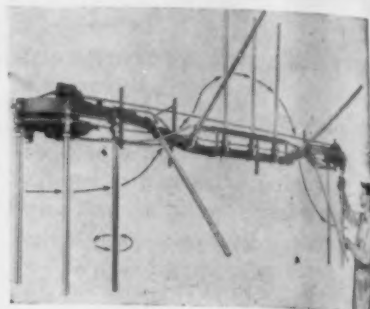
WALLINGFORD, CONN., U. S. A.

STAINLESS • ALLOY • HIGH CARBON • LOW CARBON • STRIP AND TUBING

NEW EQUIPMENT

Secures even finish

DipAid unit for use in Bush-Lock cable conveyor systems handling parts through dipping operations imparts a variety of motions to the part or product to aid in securing an even distribution of the finish. The DipAid consists of two spiral 180° twists in the trolley rail plus



accessory buffer strips and side guide rails. As the product emerges from the dip tank it is swung counterclockwise through a 180° arc and returned to normal position by the twists in the rail. At the same time, a horizontally-mounted wheel engages a side rail to make the part or product rotate along its own axis. These motions tend to minimize running, streaking, sagging or beading of finish. DipAid can be designed to meet individual requirements. *E. W. Buschman Co.*

For more data circle No. 34 on postcard, p. 119.

Sleeve-box packaging

All types and sizes of Continental Screw's standard fasteners are packaged in a new sleeve box. The container is available in 5 or 10



gross package units. Closer inventory control, lower handling costs, and easier product identification are claimed for the improved package. The stronger package construction makes neater stock appearance. *Continental Screw Co.*

For more data circle No. 35 on postcard, p. 119.

Water saver for better welder service



Where cooling water is in short supply, a water saver control for most resistance welders provides the greatest overall degree of total water conservation and prevents excessive condensation. It also helps reduce rust, corrosion, mineral deposits in the circulating system. The equipment can be used with old or new welders. The control is automatic, starting the water flow as soon as the welder begins a se-

quence. If the welder sequence is not repeated after 3 min, the water is shut off and a neon panel light is lit. Electrical signal for the control comes from the welder air valve in most applications, although the control may be used with any type of welder where a solenoid valve, or other electrical circuit, is energized for each operating cycle. *Taylor-Winfield Corp.*

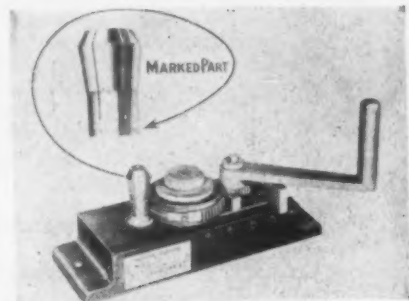
For more data circle No. 36 on postcard, p. 119.

Stamps peripheries of cylindrical parts

Stamping around tubing, bushings, collets and other round pieces is done on a new machine designed for low cost production marketing. Almost any size round part can be stamped. An arbor holds the pieces to be marked and marking is done by means of a roller marking die.

When the handle is turned the gear arrangement causes the die to rotate with the piece held in the arbor, with the lettering rolling into the part. Roller marking die may be solid or insert style. *M. E. Cunningham Co.*

For more data circle No. 37 on postcard, p. 119.

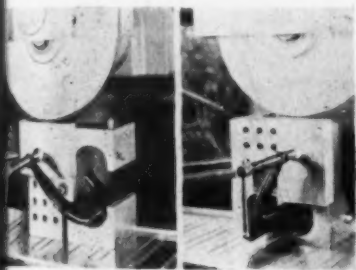


Angle plate aids in grinding workpiece square

With the Federal Square Master angle plate an apprentice can grind a workpiece to exact squareness without use of such auxiliary tools as an indicator, precision square and surface plate. The precision tool has built-in recess into which a C clamp can fit to hold the work

while it is being ground, and Square Master can be turned without disturbing work or clamp. The surfaces guaranteed to be within 0.0002 squareness permit layout and inspection work. *Federal Machine Tool Co.*

For more data circle No. 38 on postcard, p. 119.



Oil-moisture separator cleans compressed air

For cleaning compressed air an oil and moisture separator is available with or without a regulating device. It is a high capacity 50 cfm unit with power regulations assuring steady uniform air delivery. The combination unit regulates

pressures up to 135 psi from an air line carrying pressures to 250 psi. The unit is 15 in. long x 8½ in. wide when equipped with valves and has a depth of 8½ in. *DeVilbiss Co.*

For more data circle No. 39 on postcard, p. 119.



Cleans, etches, neutralizes concrete surfaces

Properly preparing concrete and cement floors and masonry surfaces for sealing and refinishing is simplified with Surfa-Etch. In one application the liquid etching product cleans, etches, and neutralizes the surface by "boiling out" the pores free from oils, greases, dirt and soap film and neutralizing the

alkalies. Surfa-Etch produces an effervescing action caused by contact with the alkali. It is applied liberally by brush or spray. Safety is a big factor: no special clothes, gloves, goggles, or aprons need be worn. *Rust-Oleum Corp.*

For more data circle No. 40 on postcard, p. 119.

Turn Page



Most Specified for ORIGINAL EQUIPMENT POWER

WISCONSIN

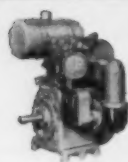
HEAVY-DUTY
Air-Cooled ENGINES

3 TO 36 HORSEPOWER

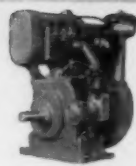
In the design, manufacture, and ultimate use-purchase of mechanized field and industrial equipment . . . Wisconsin Heavy-Duty Air-Cooled Engines are specified as Original Equipment Power Components to a greater extent than any other make of engine, within a 3 to 36 hp. range.

This dominant preference must necessarily be based on actual performance records of users . . . because Wisconsin Engines are not sold on a "price" basis. These engines have the inherent Lugging Power that stays with the job, eliminating "stop-and-go" delays, saving manpower and manhours . . . and delivering "Most H. P. Hours" of on-the-job service, with minimum servicing.

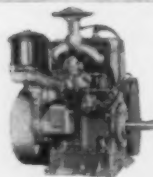
If this makes sense to you, let's get together. Write for engineering and descriptive data.



3 to 6 hp.



6 to 9 hp.



7 to 15 hp.



15 to 36 hp.

Power
TO FIT THE
JOB

Power
TO FIT THE
MACHINE

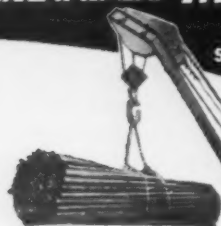


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World's Largest Builders of Heavy-Duty Air-Cooled Engines
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"KRANE KAR Mobility Is Valuable"



says Jos. Tinellis, Yard Foreman,
LACHOW BROS., INC.
BROOKLYN,
N. Y.

"The SILENT HOIST KRANE KAR keeps our crowded yard shipshape," says Mr. Tinellis. "Maneuvers easily, handles loads fast, places them accurately. With lifting clamps or sling chains we move steel shapes, lumber, tanks, scrap. Load and unload trucks. We sort and pile beams, channels, angles up to 7 tons. Also use KRANE KAR on Construction, traveling miles to erection jobs. WE'VE CUT OUR MATERIALS-HANDLING COSTS ABOUT 50%."



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Bulletin No. 79B

Gas or Diesel; 9-37 ft. Booms or Adjustable Telescopic Booms; Pneumatic or Solid Rubber Tires; Electric Magnet; Clamshell Bucket.

AMONG THE USERS: U. S. Steel, Bethlehem, Basic Magnesium, Lima Locomotive, General Motors, Pullman Standard, etc.

"Silent Hoist" KRANE KAR Swing-Boom Crane . . . 1½, 2½, 5, 10, 12½ Ton Capacity.

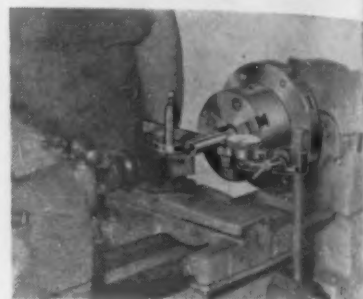
SILENT HOIST & CRANE CO.

Pioneer Mfrs. of Heavy Duty Materials-Handling Equipment
851 63rd Street, Brooklyn 20, N. Y.

NEW EQUIPMENT

Precision truing

With the Sanford Auto-Truer any lathe chuck, face plate or special fixture can be used to provide exceptionally accurate concentricity. Workpiece tolerance to within 0.0001 total indicator run-out is assured after simple adjustment made by the operator in a few seconds. Trial and error in the truing process



ess is eliminated. The Auto-Truer is mounted on the lathe spindle, then the lathe chuck, face plate or special fixture is mounted upon the Auto-Truer. Workpiece is trued by bringing pressure against it with a follower while the lathe is running. The pressure causes the Auto-Truer to shift its center until true center is indicated. Device is available for all standard lathes of from 6 to 12-in. swing. Sanford Mfg. Corp.

For more data circle No. 41 on postcard, p. 113.

Hopper dump box

New hopper-front dump box is designed for compact tiering and rollover dumping. The corrugated 12-gage steel containers permit unit-load handling and compact



tiering of purchased parts or in-process material. Small quantities can be manually removed from stacked boxes through their front hopper. Union Metal Mfg. Co.

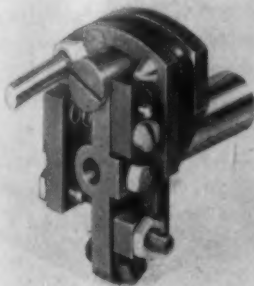
For more data circle No. 42 on postcard, p. 113.

Turn Page

NEW EQUIPMENT

Recessing tool

New recessing tool with radial action is available for automatic screw machines. The American Model B tool is cam actuated by the forward motion of the turret, eliminating the time usually re-



quired for the cross-slide to actuate the tool. Setup time is saved since it is not necessary to synchronize lead and cross slide cams. It will perform radial recessing, form recessing, or back chamfering without a cross slide, or swing recessing from a cross slide without changes or adaptations. American Cam Co.

For more data circle No. 43 on postcard, p. 119.

Tiny zinc diecastings

The Gries method of diecasting integral one-piece assemblies in one operation eliminates costly, time-consuming manufacture and assembly of 2 to 4 separate parts. Small gears, pinions, and gears in



combination with mechanical elements such as cams, hubs, spacers, rings, etc., are furnished to precision tolerances. The company specializes in the manufacture of these tiny zinc alloy diecastings. Gries Reproducer Corp.

For more data circle No. 44 on postcard, p. 119.

Turn Page

Erie BUCKETS ARE A *Specialty* — NOT A SIDELINE

Right from the start we thought enough about buckets to make them our specialty. That was 34 years ago. They're still our bread and butter.

Today, thousands of Erie units all over the world are turning in top performance. That's because they were built with a complete understanding of what they had to do.

Why not let our engineers review your set-up. There's no obligation. And, based on past experience, we're sure we can offer a helpful suggestion.



Write for BULLETIN 403, Dept. A84



584 GEIST ROAD • ERIE, PENNSYLVANIA

THIS IS LOW COST WELDING!



When a touch on a button moves weldments like these into the correct, most convenient position for a downhand pass, you get more arc time, more welding at lower cost. C-F power operated Positioners rotate the work in a full circle at any point in a range of 135° from the horizontal—giving welders a choice of an infinite number of downhand welding positions instantly.

Every requirement for faster, better positioned welding—constant or variable speed table rotation, full 135° tilt, self-locking gearing which holds the table in any position, oversize built-in main tilt and rotating bearings, choice of two base styles, and many other features—are built into C-F Positioners.

C-F Positioners are available in Hand or Power operated models, and are made in capacities up to 30,000 lbs. and larger.

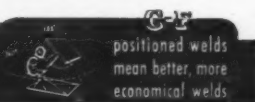
Write for the new C-F Positioner Catalog

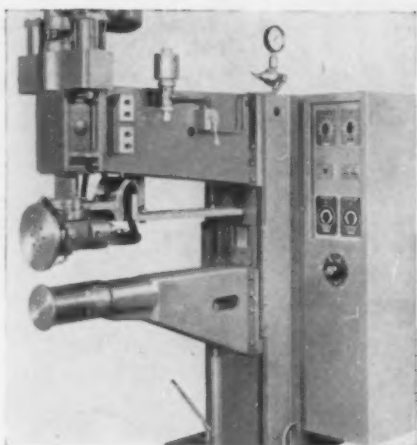
CULLEN-FRIESTEDT CO.

1303 S. Kilbourn Avenue

Chicago 23, Illinois

CULLEN-FRIESTEDT CO., CHICAGO 23, ILL.





Makes high quality welds at top speed

High quality seam welds at top speed are possible with the new Sciaky MP 2 single phase seam welder. The series air operated, press type, low impedance machine is one of a line of versatile welders Sciaky Bros. has developed. The MP 2 is made with either 18 or 48 in. throat depth, and has 1500 lb to 3000 lb electrode force dependent on throat depth. The unit will make top quality welds on large production runs on two thicknesses

of mild steel in gages from 0.021 to 0.109 in. By varying weld time, weld current, and electrode force, heavier gages can be joined at slower speeds. The side mounted, integral controls are ruggedly designed, simple, and accessible. The controls provide squeeze synchronous heat, synchronous cool, and hold timers. Eight points of heat control are provided by a tap switch. *Sciaky Bros., Inc.*

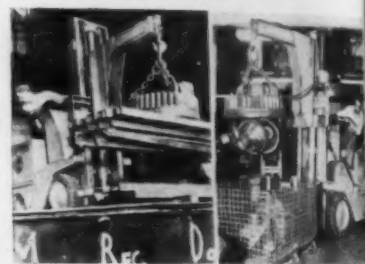
For more data circle No. 45 on postcard, p. 118.

Electro magnets for use with industrial trucks

Small electro-magnets used with industrial trucks speed materials handling operations. They can be used with boom equipped gas or electrical industrial trucks and in some applications magnets can be attached to lift truck forks. The magnets will lift coiled stock, cast-

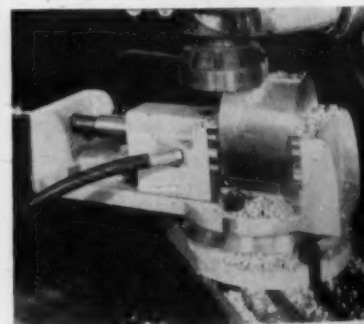
ings, billets, pipe, slabs and batches of small parts; can be utilized as floor type sweepers for ferrous scrap. Sizes range from 12½ to 36 in. diam and weigh 155 to 1900 lb for intermediate duty operations. *Electric Controller & Mfg. Co.*

For more data circle No. 46 on postcard, p. 119.



Air-hydraulic vise

Power operated milling machine vise trademarked Wiltomatic M-M combines the speed of an air vise with the strength, compactness, and locking force of hydraulic vises. Loading and unloading time is expected to be cut 80 pct. With



the touch of a toe on an air valve, the operator can instantaneously place a force of 9000 lb on the jaws of the vise. Flexibility permits adjustment with ordinary crank handle motion to any desired opening. Vise can be locked manually as well as under power. Trial installation or demonstration in own plant can be arranged at the customer's convenience. *Wilton Tool Mfg. Co., Inc.*

For more data circle No. 47 on postcard, p. 118.







**more
tonnage
per
edge**

**A M E R I C A N
S H E A R K N I F E C O .
H O M E S T E A D • P E N N S Y L V A N I A**

NEW EQUIPMENT

Cleaning before painting

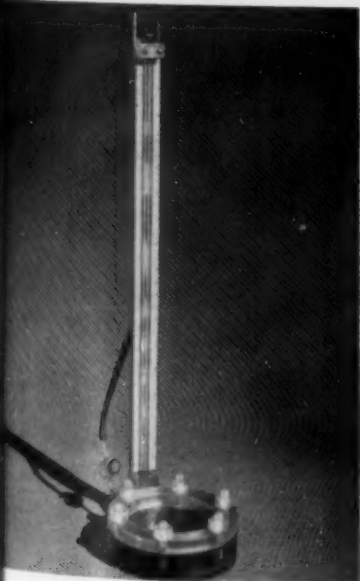
Phosteem product and process are said to provide a new method of cleaning and phosphatizing metal surfaces prior to painting. It is an efficient, simple and effective method of simultaneously cleaning ferrous metals, aluminum alloys, zinc coated surfaces and may be applied to almost any type of metal alloy which is to be painted. Plant space required is small; can be in any convenient available section of the plant. With Phosteem, size, shape or complexity of the article to be cleaned or treated is no longer a costly cleaning proposition. Neilson Chemical Co.

For more data circle No. 48 on postcard, p. 119.

Stress measuring

Stresses in chemically deposited metals, electroplated metals and paint, lacquer and plastic films can be measured with a new instrument, the Stresometer. Stresses ranging from 100,000 psi in tension to 50,000 psi in compression can readily be measured. The Stresometer is actuated by the deflection of a simple flat metal disk that dishes in or bulges out according to whether material deposited on the disk, shrinks or expands. A small deflection is instantly magnified more than a thousand times and can be read in inches on the linear stress scale of the instrument. Joseph B. Kushner Electroplating School.

For more data circle No. 49 on postcard, p. 119.



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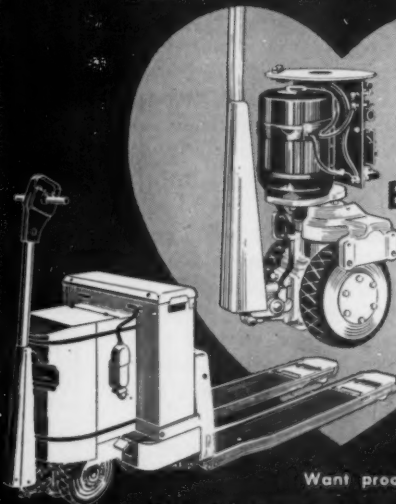
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Note: The Dyna-Dual Power Unit is interchangeable on all models.

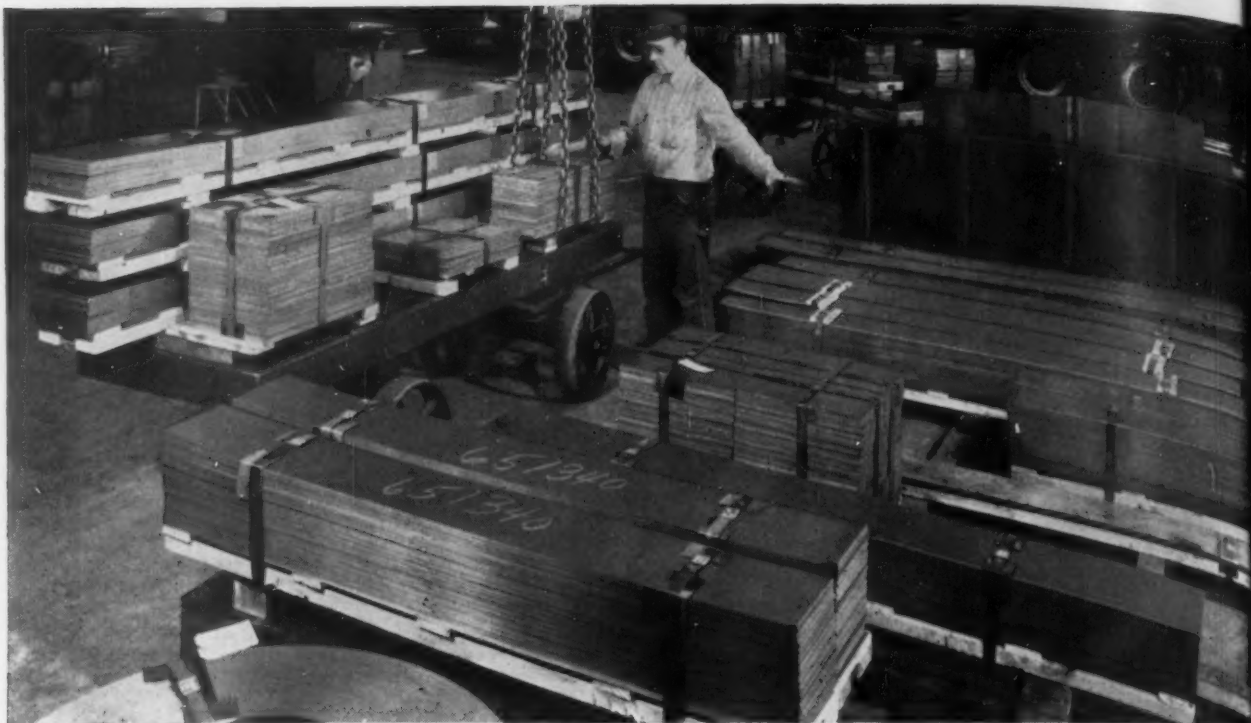


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sheets and strip

every requirement, cut to size, ready to use

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You draw on stocks of more than twenty different kinds of sheet steel at Ryerson—hot rolled, pickled and oiled, cold rolled, galvanized, deep drawing and many others. And ton upon ton of coil stock in many gauges are also on hand. To transform these stocks into blanks, straight lengths, coils, etc., efficient Ryerson shearing, slitting and edging equipment and cut-to-length lines, which turn coil steel into flat sheets of any measure are all at your service.

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The Iron Age SUMMARY . . .

Steel earnings decline less than production . . . Inventories may
pace market upturn . . . Scrap prices score new gains.

Earnings . . . While steel production in second quarter of this year was 2.2 pct less than first quarter, the industry's earnings actually rose 15.7 pct.

And, although production in the first half of 1954 was 24 pct less than in the first half of 1953, earnings declined only 15.7 pct.

The steel industry profits picture is obtained from an IRON AGE compilation of earnings statements of 20 companies accounting for more than four-fifths of the industry's steelmaking capacity.

Comparison with 1953 is especially significant because 1953 was the second most profitable year in the history of the industry, being only 4 pct under the record year, 1950.

Taxes . . . Contrary to common belief, elimination of the excess profits tax had little to do with the industry's favorable financial results. Earnings of most companies would not have been affected by the tax had it still applied.

At the same time, estimated federal income taxes of steel companies were drastically lower. This was due largely to accelerated amortization

of recently expanded defense supporting steel-making facilities. Once these facilities have been written off (in 5 years), the tax burden of steel companies will go up sharply.

Outlook . . . The outlook for steel in the second half of this year is favorable. Although steel companies enter the period with order backlogs shrunken, it is expected they will be able to obtain sufficient business to permit them to operate at least as high as they did in the first half. Earnings should fare equally well.

Inventories . . . Hope for a September upturn in steel business after the summer lull is strengthened by the inventory situation of steel users. Most of them have cut their steel stocks to the bone. Even a slight upturn in their business will make some present inventories inadequate. Inventories may thus prove almost as big a factor in the market upturn as they were in the decline during the past year.

Production . . . Steelmaking operations this week are scheduled at 65.0 pct of rated capacity.

Steel Output, Operating Rates

	This Week†	Last Week	Month Ago	Year Ago
Production (Net tons, 000 omitted)	1,544	1,532	1,430	2,119
Ingot Index (1947-49=100)	96.1	95.4	89.0	131.9
Operating Rates				
Chicago	70.0	65.0	71.0	96.5
Pittsburgh	63.0	60.0*	60.0	95.0
Philadelphia	56.0	56.0	53.0	98.0
Valley	61.0	60.0*	54.0	99.0
West	83.0	82.5*	73.0	99.0
Detroit	58.0	60.0	50.0	104.0
Buffalo	56.0	56.5*	61.0	106.0
Cleveland	57.5	61.5*	61.0	98.5
Birmingham	72.0	76.0	76.0	95.5
S. Ohio River	68.0	68.0	71.0	95.5
Wheeling	84.0	86.0*	72.0	101.0
St. Louis	47.5	47.5	55.0	102.0
East	32.0	32.0	64.0	97.0
Aggregate	65.0	64.5	60.0	94.0

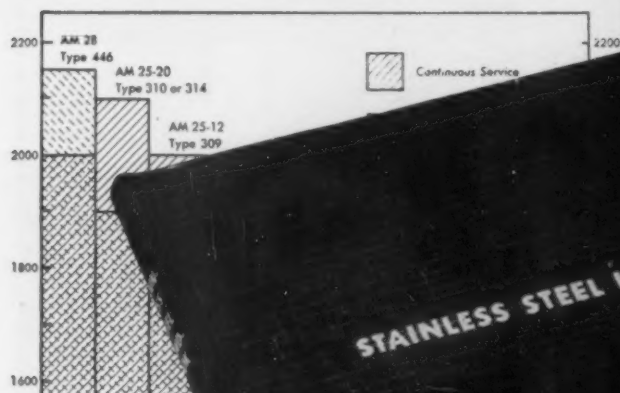
* Revised. † Tentative

Prices At A Glance

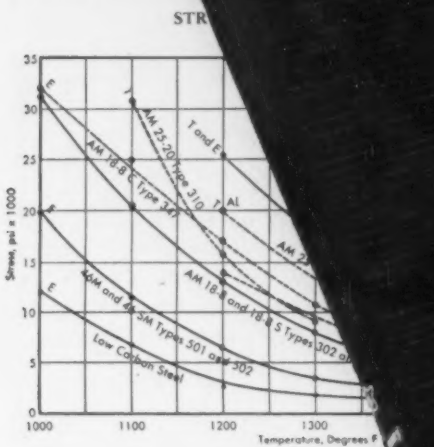
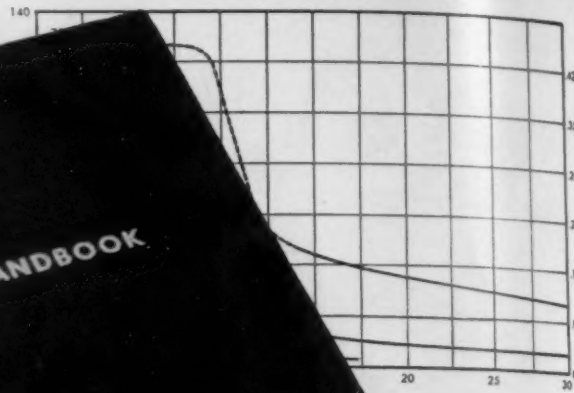
(cents per lb unless otherwise noted)

	This Week	Week Ago	Month Ago	Year Ago
Composite prices				
Finished Steel, base	4.801	4.801	4.801	4.634
Pig Iron (gross ton)	\$56.59	\$56.59	\$56.59	\$56.76
Scrap, No. 1 hvy (gross ton)	\$27.83	\$27.33	\$26.75	\$44.58
Nonferrous				
Aluminum, ingot	21.50	21.50	21.50	21.50
Copper, electrolytic	30.00	30.00	30.00	29.50
Lead, St. Louis	13.80	13.80	13.80	13.55
Magnesium, ingot	27.75	27.75	27.75	27.00
Nickel, electrolytic	63.08	63.08	63.08	63.08
Tin Straits, N. Y.	95.50	96.125	96.75	78.25
Zinc, E. St. Louis	11.00	11.00	11.00	11.00

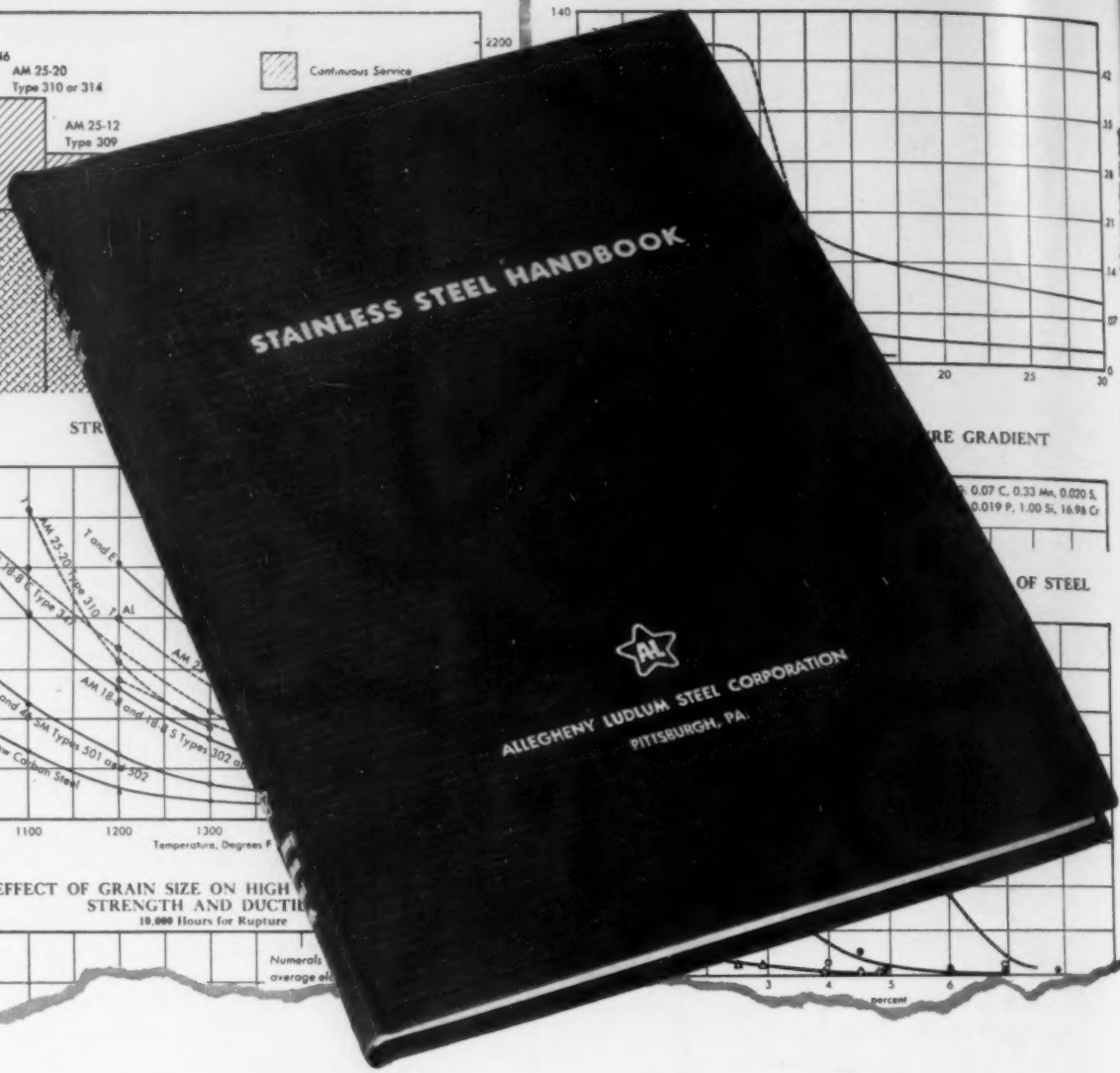
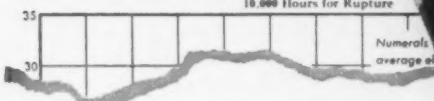
TEMPERATURE LIMIT OF RESISTANCE TO PROGRESSIVE SCALING
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BEHAVIOR OF CHROMIUM STEELS OF DIFFERENT ALLOY CONTENT
During Hydrogen-Sulfide Attack



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properties and characteristics of each type will guide you in specifying grades that will do your job most efficiently. Clear, concise fabrication data will help you speed production and cut waste.

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You can make it **BETTER** with
Allegheny Metal

WAD 3185

Warehouse stocks carried by all Ryerson Steel plants



Purchasing Agent's Checklist

STEEL: Oil country boom continues	p. 63
TAXES: How new tax bill helps your firm	p. 71
AUTOS: Optimistic about second half sales	p. 74
DEFENSE: Army expansion means new business	p. 79

STEEL PRODUCT MARKETS

See Pickup Though Fall

August will be another slow month . . . Some orders shifted . . . Producers hopeful of turn for the better in September . . . Buyers will control market . . . Few products show strength.

Steel sales offices speak hopefully of that long-awaited turn for the better—they look for it in September—but the customer will likely continue in the driver's seat for a long time after its arrival.

The producers are not kidding themselves on this. They know the pickup will be a gradual one stretching into 1955. So there is no thought of easing up on the drive to hold what business they have and pick up every additional order within reaching distance.

August will be another slow month. In some products it will be worse than July. On sheets, for instance, some consumers have shifted orders originally scheduled for August delivery, to September. As a result unexpected blank spaces are appearing on shipment schedules.

Few products are classed as being in genuinely strong demand. They include oil country goods, galvanized sheets, and construction wire products. Even structurals, both standard and wide flange beams, are easing.

Sales executives groan audibly when they speak of sheets, bars, plates, mechanical tubing, stainless and silicon. Tinplate overall is in a decline, although some centers report the market is strong.

Present conditions tax memories of many in the steel industry, as well as its customers. For six out of the past seven Augusts the operating rate was above 92. The low year was of course 1949 when the August rate was about 83 pct of capacity.

Except for war-affected 1945, one must go back to 1939 to find an August rate in the low sixties.

Aside from a bigger capacity, the general business situation and

the world situation have some elements in common. Inventories are low now too and military orders may provide more of a spurt than was anticipated before the Indochina debacle.

Steel users with low inventories may find the following factors worth watching: (1) Possible reappraisal of the military's "new look"; (2) strength in farm buying; (3) auto and appliance sales. These indicators must be watched for consumer buying trends. Consumers, with high liquid savings may continue to spend, change market tone quickly.

SHEETS AND STRIP . . . Bolstered by current and planned grain bin programs, galvanized sheet business continues strong. Chicago mills, particularly are hard pressed to keep up with demand. Still on the bloomy side are cold and hot-rolled sheets and strip. Delivery schedules at some mills have been set back from August to September, leaving unexpected gaps. But there is hope that these losses can be offset, at least in part, before the month is over. Meanwhile, one mill expects August rollings to be 2-3 pct under July. Automobile producers are still withholding the green light for new model production tonnages. Chicago mills are running at top speed on tinplate orders but volume is off in Pittsburgh district.

BARS . . . Demand continues slow in most centers. An exception is the West Coast, where the market is holding up well. Situation may improve slightly in August.

TUBULAR . . . In contrast to seamless pipe, which continues strong, the butt-weld market is only fair, although a slight improvement is noted. Volume of inquiries based on quick delivery is greater than ever before. Mills are maintaining inventories to meet delivery competition. Tubing specialties are very slow. Trunk line

material is better in prospect, based on expected activity, than the current market, which is only fair.

STRUCTURALS AND PLATE . . . With the railroads and the warehouses, which account for 30-40 pct of sales, still largely out of the market, standard structurals are classed in good supply. Even wide flange beams are easier in relation to tight market of last several months. Plate demand is soft, and slack railroad car business is a factor here also. Structurals will improve if railroads get around to building some "piggy back" flat cars. West Coast plate market is good on basis of large tonnage jobs requiring sheared plate. Chicago is on 2-3 week delivery basis, and some spot tonnage is available from mill stock. On standard structurals, Chicago is on 2-3 week delivery, slightly longer on wide flange. West Coast market is easy.

WIRE . . . Pittsburgh mills report a slight pickup in manufacturers wire but no significant improvement is looked for until September; merchant wire demand is better this summer than last; construction products continue strong—one mill says July shipments will be up from June, which set an all-time record for the firm. Failure of jobbers to rebuild inventories in July-August period has caused unexpected decline in Chicago area, notably in merchant wire, which was strong. Manufacturers wire hit by consumer vacation shutdowns; demand from farm equipment manufacturers is surprisingly strong.

WAREHOUSE . . . On the West Coast, small mills are accepting orders of warehouse quantities, taking some business away from regular distributors. But this has not affected warehouse business too much, and western operators find volume unexpectedly good for July. Competition is strong in all districts but signs of improvement are beginning to put in an appearance.

Wage Pact Ups Aluminum Price

Alcoa, USW sign . . . Package costs about 12¢ . . .

Will boost pig price about 1/2¢, ingot more . . . Reynolds struck

. . . Kaiser talks not on yet—By R. L. Hatschek.

Labor held the nonferrous metals spotlight early this week with the last minute settlement between Aluminum Co. of America and the United Steel Workers. Package will cost an estimated 12¢ per hour or more and runs pretty true to the form predicted by THE IRON AGE.

It will mean a price hike of about 1/2¢ per lb on pig aluminum, probably a bit more on ingot. These will probably be made this week and will be followed shortly by new price lists for mill products.

But labor talks didn't run quite as smoothly as anticipated.

The union won a 5¢ wage hike, 2¢ more insurance, approximately 2¢ additional pension benefits and an average of 3¢ toward the elimination of wage inequities. This last was the item that deadlocked the talks until the last minute.

USW had demanded 3¢ more on wages because of the effect of an escalation clause in certain plants where another union is the bargaining agent. Alcoa refused this but agreed to apply the 3¢ to complete and put into effect a wage study started several years ago in several plants.

The AFL Aluminum Workers got their automatic 5¢ pay boost and also won increases in pensions and insurance.

Monthly Average Prices

The average prices of the major non-ferrous metals in July, based on quotations appearing in THE IRON AGE were as follows:

	Cents Per Pound
Electrolytic copper, Conn. Valley..	30.00
Lake copper, delivered	30.00
Straits tin, New York	96.536
Zinc, East St. Louis	11.00
Zinc, New York	11.500
Lead, St. Louis	13.80
Lead, New York	14.00

Thus ran the Alcoa labor settlement.

But elsewhere in the industry it was different—workers struck eight plants of Reynolds Metals Co. last Sunday when negotiations broke down. Reason for the breakdown was still in question since statements seemed to conflict. At presstime, the plants were still strikebound.

Meanwhile, Kaiser Aluminum & Chemical Corp. sat on the sidelines as an interested spectator. Its contract with the USW doesn't expire until Aug. 31 and no date has been set for initial negotiations.

ALUMINUM . . . Alcoa's statement at the end of the labor talks was that it could not absorb all the costs of the wage increase and other benefits. Result is that a price adjust-

ment is necessary and will be announced "soon."

The "soon" probably means this week, though, at presstime, no word had yet been received. Extent of the increase will depend not only on wage factors but also on recent capital expenses. (See THE IRON AGE, July 22, p. 62). It is expected to be about 1/2¢ per lb on pig, probably a bit more on ingot.

COPPER . . . With August copper just about spoken for as far as the major suppliers are concerned, the domestic market for the red metal turned rather quiet last week. But the trade was keeping a watchful eye on developments in London. Copper prices have been slipping in that market lately and there's some apprehension that the trend may cross the Atlantic.

This, plus freely flowing supplies of No. 2 copper scrap at 25.50¢ per lb, led to a 1/4¢ reduction in some custom smelter and ingot maker buying prices for copper scrap last week. Some buyers held to the older quotations and the result is a spread of 0.25¢. Scrap dealers inched down from the top of their spread for No. 2 and light copper scrap.

LEAD . . . Trade has also expressed some concern over slipping lead prices in London. At the close of business last week, lead was quoted at the New York equivalent of about 13.53¢ per lb as compared to the current 14¢ price at New York. Expected further stockpiling by the U. S. government and the possibility of higher tariffs will tend to slow any price cutting actions here.

In the statistical scent, smelter receipts of lead in ore and scrap increased in June to 43,316 tons (May, 41,387 tons), according to figures of the American Bureau of Metal Statistics. This brings the first half total to 264,260 tons as compared to 267,853 tons in the first half of '53.

ZINC . . . As with copper and lead, price quotations for zinc slipped last week in London, descending to the lowest level since mid-March. But the domestic market was reinforced by fairly good sales last week, especially in Prime Western grade.

Feeling in the trade was also bolstered by President Eisenhower's action in raising import duties on watches. Some drew a parallel between watches and zinc and said the tariff boost for one heightened the chances for like action on the other.

Nonferrous Metal Prices

(Cents per lb except as noted)

	July 28	July 29	July 30	July 31	Aug. 2	Aug. 3
Copper, electro, Conn.	30.00	30.00	30.00	30.00	30.00	30.00
Copper, Lake, delivered ...	30.00	30.00	30.00	30.00	30.00	30.00
Tin Straits, New York	96.125	96.00	95.875	....	95.50	95.50*
Zinc, East St. Louis	11.00	11.00	11.00	11.00	11.00	11.00
Lead, St. Louis	13.80	13.80	13.80	13.80	13.80	13.80

Note: Quotations are going prices

*Tentative



Photographed through courtesy of Macy's New York

CAUGHT!—by Silent Sounds

Suddenly, the lights snap on. Someone yells—

"Don't move or we shoot!"

How had the burglar been detected? No one saw him enter. There was no watchman. And no sign of an alarm system.

No obvious sign, that is. But there was a system — the Alertronic Burglar Alarm.

This unusual protective device operates by sending out 19,200 cycle-a-second sound waves, too high for human ears to hear. The slightest movement of an intruder disturbs these waves of silent sound and activates the alarm. It's so sensitive that even the motion of heated air rising from a fire sets it off.

What produces the vibrations? Two slender nickel rods—and a prin-

ciple of physics called *magnetostriction* (the peculiar way they change size in a changing magnetic field).

Putting magnetostriction to work in this ultrasonic burglar alarm — the first ever to be approved by The Underwriters' Laboratories—wasn't an overnight job. It was twelve years ago that the inventor made his first experiments.

The search for a material with necessary magnetostrictive properties ended when he came to Inco — for nickel proved to be the material he was seeking.

And, as it turned out, he got more

than a metal from Inco . . .

In the years that have passed, he has found Inco always ready to help in supplying information on the physical and mechanical properties of Inco Nickel Alloys and other metals . . . on the technical aspects of magnetostriction . . . and on questions involving metal fabrication.

This same type of friendly cooperation, of course, is available to you for the asking. Let's get together on *your* problem.

The International Nickel Company, Inc.
67 Wall Street New York 5, N. Y.

Inco Nickel Alloys



MONEL® • "R"® MONEL • "K"® MONEL
"KR"® MONEL • "S"® MONEL • INCONEL®
INCONEL "X"® • INCONEL "W"®
INCOLOY® • NIMONIC® ALLOYS • NICKEL
LOW CARBON NICKEL • DURANICKEL®

Nonferrous Prices

(Effective Aug. 3, 1954)

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

Aluminum

(Base 30,000 lb, f.o.b. ship. pt. allowed)
Flat Sheet: 0.136 in. and thicker, 2S, 3S, 33.9¢; 4S, 36.0¢; 52S, 38.2¢; 24S-O, 24S-OAL, 37.0¢; 75S-O, 75S-OAL, 44.7¢; 0.081-in., 2S, 3S, 35.1¢; 4S, 37.7¢; 52S, 39.9¢; 24S-O, 24S-OAL, 38.4¢; 75S-O, 75S-OAL, 46.9¢; 0.032-in., 2S, 3S, 37.0¢; 4S, 41.8¢; 24S-O, 24S-OAL, 46.9¢; 75S-O, 75S-OAL, 58.4¢.

Plate, 1/4-in. and heavier: 2S-F, 3S-F, 32.4¢; 4S-F, 34.5¢; 52S-F, 36.2¢; 61S-O, 35.6¢; 24S-O, 24S-OAL, 36.9¢; 75S-O, 75S-OAL, 44.3¢.

Extruded Solid Shapes: Shape factors 1 to 5, 36.5¢ to 32.8¢; 12 to 14, 37.2¢ to 39.0¢; 24 to 26, 39.9¢ to 41.29¢; 36 to 38, 47.2¢ to 41.89¢.
Rod, Rolled: 1.064 to 4.5-in., 2S-F, 3S-F, 43.8¢ to 37.2¢; cold-finished, 0.375 to 3.449-in., 2S-F, 3S-F, 47.6¢ to 39.3¢.

Screw Machine Stock: Rounds, 11S-T3, 1/2 to 1 1/31-in., 69.6¢ to 47.0¢; 3/8 to 1 1/2-in., 46.6¢ to 43.8¢; 1 9/16 to 3-in., 42.7¢ to 39.9¢. Base 60,000 lb.

Drawn Wire: Coiled 0.051 to 0.374-in., 2S, 44.1¢ to 32.4¢; 52S, 53.4¢ to 39.1¢; 17S-T4, 60.1¢ to 41.8¢; 61S-T4, 53.9¢ to 41.3¢.

Extruded Tubing: Rounds, 63S-T5, OD 1 1/4 to 2-in., 31.6¢ to 60.7¢; 2 to 4 in., 37.7¢ to 51.1¢; 4 to 6 in., 38.2¢ to 46.6¢; 6 to 9 in., 38.7¢ to 48.8¢.

Roofing Sheet: Flat, per sheet, 0.032-in., 42% x 60 in., \$2.838; x 96 in., \$4.543; x 120 in., \$5.680; x 144 in., \$6.816. Coiled sheet, per lb, 0.019 in., x 28 in., 30.8¢.

Magnesium

(F.o.b. mill, freight allowed)

Sheet & Plate: FS1-O 1/4 in., 56¢; 3/16 in., 57¢; 1/8 in., 60¢ 0.064 in., 73¢; 0.032 in., 94¢. Specification grade higher. Base 30,000 lb.

Extruded Round Rod: M, diam 1/4 to 0.311 in., 77¢; 1/2 to 1 in., 60.5¢; 1 1/4 to 1.749 in., 56¢; 2 1/2 to 5 in., 51.5¢; Other alloys higher. Base up to 1/4 in. diam, 10,000 lb; 3/4 to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes: Rectangles: M. In weight per ft. for perimeters less than size indicated: 0.10 to 0.11 lb, 3.5 in., 65.3¢; 0.22 to 0.25 lb, 5.9 in., 62.3¢; 0.50 to 0.59 lb, 8.6 in., 59.7¢; 1.3 to 2.59 lb, 19.5 in., 56.8¢; 4 to 6 lb, 28 in., 52¢. Other alloys higher. Base, in weight per ft of shape: Up to 1/4 lb, 10,000 lb; 1/4 to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, 0.049 to 0.057 in. wall thickness: OD, 1/4 to 5/16 in., \$1.43; 5/16 to 1/2 in., \$1.29; 1/2 to 3/4 in., 96¢; 1 to 2 in., 79¢; 0.165 to 0.219 in. wall: OD, 3/4 to 1 in., 64¢; 1 to 2 in., 60¢; 3 to 4 in., 59¢. Other alloys higher. Base, OD: Up to 1 1/4 in., 10,000 lb; 1 1/4 to 3 in., 20,000 lb; over 3 in., 30,000 lb.

Titanium

(10,000 lb base, f.o.b. mill)

Commercially pure and alloy grades: Sheets and strip, HR or CR, \$15; Plate, HR, \$12; Wire, rolled and/or drawn, \$11; Bar, HR or forged, \$6; Forgings, \$6.

Nickel, Monel, Inconel

(Base prices, f.o.b. mill)

	"A" Nickel	Monel	Inconel
Sheet, CR	86 1/2	67 1/2	92 1/2
Strip, CR	92 1/2	70 1/2	98 1/2
Rod, bar	82 1/2	65 1/2	88 1/2
Angles, HR	82 1/2	65 1/2	88 1/2
Plate, HR	84 1/2	66 1/2	90 1/2
Seamless tube	115 1/2	100 1/2	137 1/2
Shot, blocks		60	

Copper, Brass, Bronze

(Freight included on 500 lb)

	Sheet	Rods	Extruded Shapes
Copper	46.41		48.48
Copper, h-r	48.38	44.73	
Copper, drawn		45.98	
Low brass	44.47	44.41	
Yellow brass	41.72	41.66	
Red brass	45.44	45.38	
Naval brass	45.76	40.07	
Leaded brass			39.11
Com. bronze	46.95	46.89	
Mang. bronze	49.48	43.62	45.18
Phos. bronze	66.58	67.08	
Muntz metal	43.96	39.77	41.02
Ni silver, 10 pct	55.36		62.63
Beryllium copper, CR, 1.9% Be, Base			
2000 lb, f.o.b.			
Strip			\$1.68
Rod, bar, wire			1.65

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed 21.50
Aluminum pig 20.00
Antimony, American, Laredo, Tex. 28.50
Beryllium copper, per lb conta'd be. \$40.00
Beryllium aluminum 5% Be, Dollars per lb contained Be \$72.75
Bismuth, ton lots 22.25
Cadmium, del'd 11.70
Cobalt, 97-99% (per lb) \$2.60 to \$2.67
Copper, electro, Conn. Valley 30.00
Copper, Lake, delivered 30.00
Gold, U. S. Treas., per troy oz. \$35.00
Indium, 99.8%, dollars per troy oz. \$2.25
Iridium, dollars per troy oz. \$165 to \$175
Lead, St. Louis 13.80
Lead, New York 14.00
Magnesium, 99.8+%, f.o.b. Freeport, Tex., 10,000 lb, pig 27.00
Ingot 27.75
Magnesium, sticks, 100 to 500 lb, 46.00 to 48.00
Mercury, dollars per 76-lb flask, f.o.b. New York \$290 to \$293
Nickel electro, f.o.b. N. Y. warehouse 63.08
Nickel oxide sinter, at Copper Creek, Ont., contained nickel 56.35
Palladium, dollars per troy oz. \$21.00
Platinum, dollars per troy oz. \$84 to \$87
Silver, New York, cents per troy oz. 85.25
Tin, New York 95.50
Titanium, sponge, grade A-1 \$4.72
Zinc East St. Louis 11.00
Zinc New York 11.50
Zirconium copper, 50 pct 56.20

REMELED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5-5 ingot
No. 11b 27.00
No. 120 26.25
No. 123 25.75
80-10-10 ingot
No. 305 31.50
No. 315 29.25
88-10-2 ingot
No. 210 41.25
No. 215 37.75
No. 245 33.25
Yellow ingot
No. 405 23.25
Manganese bronze
No. 421 26.75

Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

95-5 aluminum-silicon alloys
0.30 copper, max. 23.00-23.25
0.60 copper, max. 22.50-22.75
Piston alloys (No. 122 type) 20.00-21.25
No. 12 alloy (No. 2 grade) 19.25-19.75
108 alloy 20.00-20.50
195 alloy 21.00-21.50
13 alloy (0.60 copper max.) 22.50-22.75
ASX-679 20.00-20.50

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—96-97 1/4% 20.50-21.00
Grade 2—92-95% 19.50-20.25
Grade 3—90-92% 18.75-19.25
Grade 4—85-90% 17.50-18.00

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, 5000 lb lots)

Copper
Cast, oval, 15 in. or longer 42.64
Electrodeposited 41.88
Flat rolled 45.04
Brass, 80-20
Cast, oval, 15 in. or longer 43.515
Zinc, flat cast 20.25
Ball, anodes 18.50
Nickel, 99 pct plus
Cast 84.00
Cadmium 11.70
Silver 999 fine, rolled, 100 oz. lots per troy oz., f.o.b. Bridgeport, Conn. 94 1/4

Chemicals

(Cents per lb, f.o.b. shipping points)

Copper cyanide, 100 lb drum 63.00
Copper sulfate, 99.5 crystals, bbl. 12.85
Nickel salts, single or double, 4-100 lb bags, frt. allowed 30.00
Nickel chloride, 375 lb drum 38.00
Silver cyanide, 100 oz. lots, per oz. 75 1/2
Sodium cyanide, 96 pct domestic 19.25
200 lb drums 54.30
Zinc cyanide, 100 lb drum 54.30

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

	Heavy	Turnings
Copper	26	25 1/2
Yellow brass	19 1/2	18
Red brass	23	22 1/2
Comm. bronze	23 1/2	22 1/2
Mang. bronze	18 1/2	17 1/2
Yellow brass rod ends	19 1/2	

Custom Smelters' Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire	26 1/2	27
No. 2 copper wire	25 1/2	25 1/2
Light copper	23 1/2	24
*Refinery brass	22 1/2	23

*Dry copper content.

Ingot Makers' Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire	26 1/2	27
No. 2 copper wire	25 1/2	25 1/2
Light copper	23 1/2	24
No. 1 composition	21 1/2	21 1/2
No. 1 comp. turnings	20 1/2	20 1/2
Rolled brass	17	17
Brass pipe	18 1/2	18 1/2
Radiators	17 1/2	18

	Aluminum
Mixed old cast	13 — 13 1/4
Mixed new clips	13 1/4 — 14
Mixed turnings, dry	13 1/2 — 13 3/4
Pots and pans	13 — 13 1/2

Dealers' Scrap

(Dealers' buying price, f.o.b. New York in cents per pound)

Copper and Brass

No. 1 heavy copper and wire	24 1/2	25
No. 2 heavy copper and wire	23	23 1/2
Light copper	21	21 1/2
New type shell cuttings	20 1/2	20 1/2
Auto radiators (unswaged)	19	19 1/2
No. 1 composition	18 1/2	19
No. 1 composition turnings	18 1/2	19
Unlined red car boxes	16	16
Cocks and faucets	16	16 1/2
Mixed heavy yellow brass	13	13 1/2
Old rolled brass	16 1/2	17
Brass pipe	16 1/2	17
New soft brass clippings	15	15
Brass rod ends	15	15
No. 1 brass rod turnings	15	15

Aluminum

Alum. pistons and struts	7	8
Aluminum crankcases	10	10
2S aluminum clippings	13	13
Old sheet and utensils	6	7
Borings and turnings	10	10
Misc. cast aluminum	10	10
Dural clips (24S)	11	11

Zinc

New zinc clippings	6	6 1/2
Old zinc	4 1/2	5
Zinc routings	3	3 1/2
Old die cast scrap	3	3 1/2

Nickel and Monel

Pure nickel clippings	60	65
Clean nickel turnings	40	45
Nickel anodes	60	65
Nickel rod ends	60	65
New Monel clippings	23	25
Clean Monel turnings	16	18
Old sheet Monel	21	23
Nickel silver clippings, mixed	15	15
Nickel silver turnings, mixed	13	13

Lead

Soft scrap lead	11	11 1/4
Battery plates (dry)	5 1/2	6
Batteries, acid free	4 1/2	4 1/2

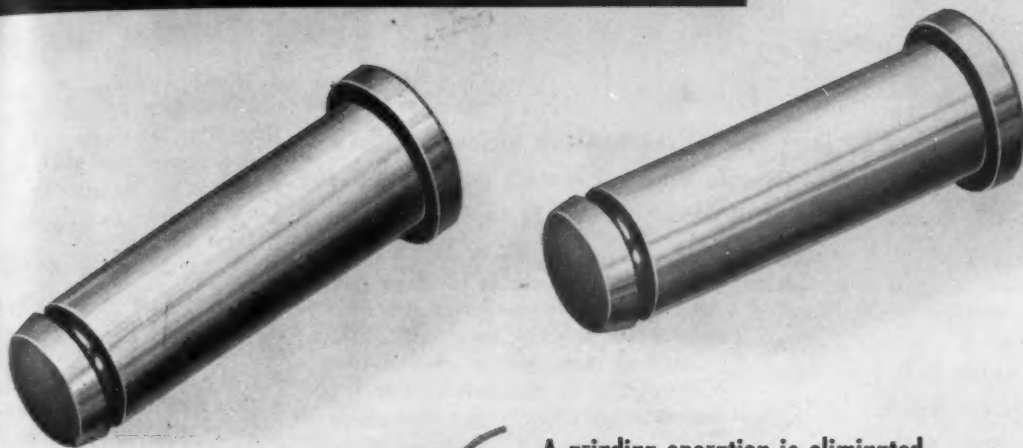
Magnesium

Segregated solids	18 1/2	19
Castings	17 1/2	18

Miscellaneous

Block tin	75	80
No. 1 pewter	55	60
No. 1 auto babbitt	12	12 1/2
Mixed common babbitt	12	12 1/2
Solder joints	45	45
Siphon tops	15 1/2	15 1/2
Small foundry type	14	14
Monotype	13	13
Lino. and stereotype	11 1/4	11 1/4
Electrotype	8 1/4	8 1/4
Hand picked type shells	8 1/4	8 1/4
Lino. and stereo. dross	4	4
Electro dross		

2 Stainless Parts...look alike



but with 1 of them

A grinding operation is eliminated

Finish and accuracy to size are vital in fabricating this hinge pivot pin. When the Company used ordinary Type 303 Stainless, machined finish was poor and parts had to be ground before delivery. Then they made just one change... to Carpenter Stainless No. 8 (Type 303). Now finish is fine, size tolerances so close that final grinding is eliminated.

Part cost reduced 50%

When the change was made to Carpenter No. 8, things started to happen. All troubles previously encountered—including troubles with finish, tools and production, were cleared up. In fact, production has improved to a point that the Company makes an estimated saving of at least 50%. That's a saving worth having—especially when it can be done so easily.

Tool runs between grinds jump 100% to 200%

Before this shop switched to Carpenter Stainless, tools had to be reground every 8 hours or less. Now, they run 18 to 24 hours between grinds. It all adds up to more proof that the difference in stainless steels is Carpenter quality and uniformity. You can see the difference in speed, quality and profit in your own shop—when you specify "Carpenter" on your next stainless order.

Make the one change that counts...

change to **Carpenter**

Free-Machining Stainless

take the problems out of production

THE CARPENTER STEEL COMPANY, 121 W. Bern St., Reading, Pa.
Export Department: The Carpenter Steel Co., Port Washington, N.Y.—"CARSTEELCO"

For fast delivery, call your nearest Carpenter Mill-Branch Warehouse, Office or Distributor

August 5, 1954

Some Strength in Dull Market

Firmer tone established by increases of steelmaking grades in Midwest centers . . . Export prospects hold last week's gains in quiet East Coast markets . . . Scrap composite eases up 17¢ to \$27.50.

Although the activity in last week's scrap market could never be termed frenzied, and hardly even busy, the trading that did take place brought a favorable movement.

The 50¢ increase in THE IRON AGE Heavy Melting Steel Scrap Composite to \$27.83, was the result of an increase in the price of No. 1 steel in Philadelphia due to reaction to export business and Pittsburgh on mill buying.

Steelmaking grades showed strength in the Midwest, with price increases resulting from a small number of sales in Cleveland, Detroit and the Valley.

In Chicago area buying by the smaller mills continued to hold the price line after the climb in steel-making grades of the week before.

Only soft spot in prices of steel-making scrap was Cincinnati where latest sales brought a 50¢ decrease in No. 1 heavy melting. Reason for the drop was laid more to a drop in freight rates than to a genuinely weak market.

Pittsburgh . . . A large consumer bought a limited tonnage of No. 1 heavy melting and No. 2 steel at \$30 and \$27 respectively, an increase of \$1 a ton. Meanwhile there is mild activity on openhearth grades as consumers ride along on their inventories and the knowledge that August ingot production will be low. A purchase of short turnings by a large consumer established a delivered price of \$20.50, up \$1.50. Despite the dearth of buying, the market here is considered firm. The rise of exports from the East is contributing to bullish feeling in this area.

Chicago . . . Scrap market in Chicago continued to hold the line last week. A few grades began to creep up again after the sharp low of last

month. In the absence of large mill orders, buying by smaller mills served to hold the market at recent slight gains, and there was a continuation of the pickup in optimism despite the slow mill activity. Dealer inventories are regarded as relatively low, chiefly due to depressed prices rather than any spurt in business. Electric furnace exhibited slightly more strength, though order tonnages continued very low. Railroad grades, despite recent advances in list prices, were not yet showing any great strength at the consumer level.

Philadelphia . . . Prices of No. 1 and No. 2 steel rose in this market, with continuing export business the spur. Domestic buying is still slow, but brokers expect present quotations to hold through August. Nobody will guess what happens then.

New York . . . Export business continues to hold up prices here. One broker described domestic buying as "drab." Relief isn't expected until September, if then.

Detroit . . . Higher prices for automotive list scrap and some early month buying flurries brought primary openhearth prices up \$1.50 on the average. Higher prices were paid than those quoted, but the limited tonnage and low operating rate kept the increase at a more modest level. No. 2 grades did not gain correspondingly and turnings remained unchanged. A revised purchasing setup at the district's largest consumer is of interest locally.

Cleveland . . . On the basis of latest sales, price of No. 1 heavy melting steel is up \$2 per ton in Cleveland to \$29, top. Secondary openhearth grades are up \$1. No. 1 railroad rose \$2 per ton. The Valley also is stronger, the only question being how much. Some consumers report they are paying \$32 per ton for No. 1 heavy melting and No. 1 busheling, an increase of \$3 per

ton. But other sources contend good dealer material can be had for \$31, that some has been sold recently for \$30 per ton. In recognition of this difference of opinion, the Youngstown price for No. 1 heavy melting carries a \$2 spread—\$30 to \$32.

Birmingham . . . With the exception of cast grades the market is very sluggish. Dealers are completing earlier orders, but new business is virtually at a standstill. Some cast has been moving down the Mississippi River by barge.

St. Louis . . . Steel mills are buying in quantities only equal to their melt, which is down to 47.4 pct, and they are able to get the required tonnages within the base area at present prices without reaching out into other markets. Stove plate is in scarce supply with steady demand and prices are up \$3.

Cincinnati . . . Prices declined slightly here on the basis of latest sales, but the downturn was not taken to mean a weakening of the market. On the contrary, prevailing feeling is that prices may turn upward. In fact the slight moderation was due more to a lower freight rate than anything else. No. 1 heavy melting steel is off 50¢ to \$25—\$26.50, top. No. 2 steel was off similarly but No. 2 bundles remained unchanged. Other grades are not affected.

Buffalo . . . With dealer sentiment mixed after recent sales, the market marked time here this week. Quotations held steady as at least one mill showed willingness to place new orders near the inside figures of current ranges.

Boston . . . Prices rose sharply here last week, but the increase was largely due to a new freight rate and replacement of earlier quotations, which had been largely nominal, by prices based on firm sales. Some export business at the top of the spread was reported, but for large (80,000-lb cars) shipments only.

West Coast . . . Cast scrap enjoys another lively week. Strong demand and a short supply in San Francisco firmed prices to \$42-\$45. In Los Angeles demand is still good with foundries now working up inventories and calling loudest for automotive cast. Rest of the scrap market holding steady at same level reported last few weeks. Possible changes in mill requirements anticipated next week.

SCRAP

for your every requirement

LURIA BROTHERS AND COMPANY, INC.

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LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Exports-Imports—Livingston & Southard, Inc., 99 Park Avenue, New York, N. Y. Cable Address: FORENTRACO.

Berman

Scrap Prices

(Effective Aug. 3, 1954)

Pittsburgh

No. 1 hvy. melting	\$29.00 to \$30.00
No. 2 hvy. melting	26.00 to 27.00
No. 1 bundles	28.00 to 29.00
No. 2 bundles	23.00 to 24.00
Machine shop turn.	15.50 to 16.50
Mixed bor. and ms. turns.	15.50 to 16.50
Shoveling turnings	19.50 to 20.50
Cast iron borings	18.00 to 19.00
Low phos. punch'gs, plate	31.00 to 32.00
Heavy turnings	26.00 to 27.00
No. 1 RR. hvy. melting	31.00 to 32.00
Scrap rails, random lgth.	36.00 to 37.00
Rails 2 ft and under	42.00 to 43.00
RR. steel wheels	34.00 to 35.00
RR. spring steel	34.00 to 35.00
RR. couplers and knuckles	34.00 to 35.00
No. 1 machinery cast.	42.00 to 43.00
Cupola cast.	34.00 to 35.00
Heavy breakable cast.	30.00 to 31.00

Chicago

No. 1 hvy. melting	\$29.00 to \$30.00
No. 2 hvy. melting	27.00 to 28.00
No. 1 factory bundles	31.00 to 32.00
No. 1 dealers' bundles	28.00 to 29.00
No. 2 dealers' bundles	22.00 to 23.00
Machine shop turn.	12.00 to 13.00
Mixed bor. and turn.	14.00 to 15.00
Shoveling turnings	14.00 to 15.00
Cast iron borings	14.00 to 15.00
Low phos. forge crops	35.00 to 36.00
Low phos. punch'gs, plate	33.00 to 34.00
Low phos. 3 ft and under	32.00 to 33.00
No. 1 RR. hvy. melting	32.00 to 33.00
Scrap rails, random lgth.	36.00 to 37.00
Rerolling rails	43.00 to 44.00
Rails 2 ft and under	43.00 to 44.00
Locomotive tires, cut	33.00 to 34.00
Cut bolsters & side frames	35.00 to 36.00
Angles and splice bars	37.00 to 38.00
RR. steel car axles	40.00 to 41.00
RR. couplers and knuckles	35.00 to 36.00
No. 1 machinery cast.	39.00 to 40.00
Cupola cast.	36.00 to 37.00
Heavy breakable cast.	29.00 to 30.00
Cast iron brake shoes	31.00 to 32.00
Cast iron car wheels	33.00 to 34.00
Malleable	40.00 to 41.00
Stove plate	30.00 to 31.00

Philadelphia Area

No. 1 hvy. melting	\$23.50 to \$25.50
No. 2 hvy. melting	21.50 to 23.50
No. 1 bundles	24.50 to 25.50
No. 2 bundles	18.00 to 19.00
Machine shop turn.	13.00 to 14.00
Mixed bor. short turn.	15.00 to 16.00
Cast iron borings	15.00 to 16.00
Shoveling turnings	16.00 to 17.00
Clean cast chem. borings	20.00 to 21.00
Low phos. 5 ft and under	26.00 to 27.00
Low phos. 2 ft and under	27.00 to 28.00
Low phos. punch'gs	27.00 to 28.00
Elec. furnace bundles	25.00 to 26.00
Heavy turnings	23.00 to 24.00
RR. steel wheels	31.00 to 32.00
RR. spring steel	31.00 to 32.00
Rails 18 in. and under	40.00 to 41.00
Cupola cast.	34.00 to 35.00
Heavy breakable cast.	35.00 to 36.00
Cast iron carwheels	38.00 to 39.00
Malleable	36.00 to 37.00
Unstripped motor blocks	27.00 to 28.00
No. 1 machinery cast.	39.00 to 40.00
Charging box cast.	36.00 to 37.00

Cleveland

No. 1 hvy. melting	\$28.00 to \$29.00
No. 2 hvy. melting	25.00 to 26.00
No. 1 bundles	28.00 to 29.00
No. 2 bundles	23.00 to 24.00
No. 1 busheling	28.00 to 29.00
Machine shop turn.	12.00 to 13.00
Mixed bor. and turn.	16.00 to 17.00
Shoveling turnings	16.00 to 17.00
Cast iron borings	16.00 to 17.00
Cut struct'l & plate, 2 ft & under	31.50 to 32.50
Drop forge flashings	26.00 to 27.00
Low phos. 2 ft & under	30.00 to 31.00
No. 1 RR. heavy melting	29.00 to 30.00
Rails 3 ft and under	42.00 to 43.00
Rails 18 in. and under	43.00 to 44.00
Railroad grate bars	27.00 to 28.00
Steel axle turnings	19.00 to 20.00
Railroad cast.	41.00 to 42.00
No. 1 machinery cast.	41.00 to 42.00
Stove plate	34.00 to 35.00
Malleable	40.00 to 41.00

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Youngstown

No. 1 hvy. melting	\$30.00 to \$32.00
No. 2 hvy. melting	25.00 to 27.00
No. 1 bundles	30.00 to 32.00
No. 2 bundles	23.00 to 25.00
Machine shop turn.	14.00 to 15.00
Shoveling turnings	19.00 to 20.00
Cast iron borings	19.00 to 20.00
Low phos. plate	32.00 to 34.00

Buffalo

No. 1 hvy. melting	\$26.00 to \$27.00
No. 2 hvy. melting	22.00 to 23.00
No. 1 busheling	26.00 to 27.00
No. 1 bundles	26.00 to 27.00
No. 2 bundles	20.00 to 21.00
Machine shop turn.	14.50 to 15.50
Mixed bor. and turn.	17.50 to 18.50
Shoveling turnings	18.00 to 18.50
Cast iron borings	17.50 to 18.50
Low phos. plate	29.00 to 30.00
Scrap rails, random lgth.	33.00 to 34.00
Rails 2 ft and under	40.00 to 41.00
RR. steel wheels	34.00 to 35.00
RR. spring steel	34.00 to 35.00
RR. couplers and knuckles	34.00 to 35.00
No. 1 machinery cast.	40.00 to 41.00
No. 1 cupola cast.	36.00 to 37.00

Detroit

Brokers buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$22.00 to \$23.00
No. 2 hvy. melting	18.00 to 19.00
No. 1 bundles, openhearth	23.00 to 24.00
No. 2 bundles	16.00 to 17.00
New busheling	21.00 to 22.00
Drop forge flashings	21.00 to 22.00
Machine shop turn.	6.00 to 7.00
Mixed bor. and turn.	8.00 to 9.00
Shoveling turnings	8.00 to 9.00
Cast iron borings	8.00 to 9.00
Low phos. punch'gs, plate	22.00 to 23.00
No. 1 cupola cast.	32.00
Heavy breakable cast.	23.00
Stove plate	28.00
Automotive cast.	36.00

St. Louis

No. 1 hvy. melting	\$25.00 to \$26.00
No. 2 hvy. melting	23.50 to 24.50
No. 1 bundles	25.00 to 26.00
No. 2 bundles	19.50 to 20.50
Machine shop turn.	12.00 to 13.00
Cast iron borings	12.00 to 14.00
Shoveling turnings	13.00 to 14.00
No. 1 RR. hvy. melting	29.00 to 30.00
Rails, random lengths	34.00 to 35.00
Rails, 18 in. and under	41.00 to 42.00
Locomotive tires, uncut	30.00 to 31.00
Angles and splice bars	30.00 to 31.00
Std. steel car axles	35.00 to 36.00
RR. spring steel	30.00 to 31.00
Cupola cast.	40.00 to 41.00
Hvy. breakable cast.	29.00 to 30.00
Cast iron brake shoes	25.00 to 26.00
Stove plate	34.00 to 35.00
Cast iron car wheels	30.00 to 31.00
Malleable	35.00 to 36.00
Unstripped motor blocks	29.00 to 30.00

New York

Brokers buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$20.50 to \$21.50
No. 2 hvy. melting	17.50 to 18.50
No. 2 bundles	15.00 to 15.00
Machine shop turn.	5.00 to 6.00
Mixed bor. and turn.	7.00 to 8.00
Shoveling turnings	8.00 to 9.00
Clean cast chem. borings	14.00 to 15.00
No. 1 machinery cast.	35.00 to 36.00
Mixed yard cast.	29.00 to 30.00
Charging box cast.	29.00 to 30.00
Heavy breakable cast.	29.00 to 30.00
Unstripped motor blocks	22.00 to 23.00

Birmingham

No. 1 hvy. melting	\$20.00
No. 2 hvy. melting	19.00
No. 1 bundles	20.00
No. 2 bundles	\$15.00 to 16.00
No. 1 busheling	20.00
Machine shop turn.	15.00 to 16.00
Shoveling turnings	16.00 to 17.00
Cast iron borings	13.00 to 14.00
Electric furnace bundles	26.00 to 27.00
Bar crops and plate	29.00 to 30.00
Structural and plate, 2 ft	29.00 to 30.00
No. 1 RR. hvy. melting	26.00 to 27.00
Scrap rails, random lgth.	34.00 to 35.00
Rails, 18 in. and under	37.50 to 38.50
Angles & splice bars	35.00 to 36.00
Rerolling rails	39.50 to 40.00
No. 1 cupola cast.	43.50 to 44.50
Stove plate	40.50 to 41.50
Charging box cast.	19.00 to 20.00
Cast iron car wheels	33.00 to 34.00
Unstripped motor blocks	34.50 to 35.50
Mashed tin cans	15.00 to 16.00

Boston

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	\$18.00 to \$19.00
No. 2 hvy. melting	14.25 to 15.00
No. 1 bundles	18.00 to 19.00
No. 2 bundles	12.50 to 13.00
No. 1 busheling	18.00 to 19.00
Elec. furnace, 3 ft & under	18.00 to 19.00
Machine shop turn.	4.00 to 5.00
Mixed bor. and short turn.	7.00 to 8.00
Shoveling turnings	10.00 to 11.00
Clean cast chem. borings	11.00 to 12.00
No. 1 machinery cast.	29.00 to 30.00
Mixed cupola cast.	26.00 to 27.00
Heavy breakable cast.	25.00 to 25.50
Stove plate	25.00 to 26.00
Unstripped motor blocks	26.00 to 27.00

Cincinnati

Brokers buying prices per gross ton, on cars:

No. 1 hvy. melting	\$25.50 to \$26.50
No. 2 hvy. melting	22.50 to 23.50
No. 1 bundles	26.00 to 27.00
No. 2 bundles	21.00 to 22.00
Machine shop turn.	11.00 to 12.00
Mixed bor. and turn.	13.50 to 14.50
Shoveling turnings	14.00 to 15.00
Cast iron borings	14.00 to 15.00
Low phos., 18 in. & under	32.00 to 33.00
Rails, random lengths	35.00 to 36.00
Rails, 18 in. and under	43.00 to 44.00
No. 1 cupola cast.	38.00 to 39.00
Hvy. breakable cast.	34.00 to 35.00
Drop broken cast.	43.00 to 44.00

San Francisco

No. 1 hvy. melting	\$20.00
No. 2 hvy. melting	16.00
No. 1 bundles	19.00
No. 2 bundles	16.00
No. 3 bundles	13.00
Machine shop turn.	5.00
Cast iron borings	9.00
No. 1 RR. hvy. melting	23.00
No. 1 cupola cast.	\$43.00 to 46.00

Los Angeles

No. 1 hvy. melting	\$20.00
No. 2 hvy. melting	16.00
No. 1 bundles	19.00
No. 2 bundles	\$15.50 to 16.00
No. 3 bundles	13.00
Machine shop turn.	5.00
Shoveling turnings	7.00 to 9.00
Cast iron borings	7.00 to 9.00
Elec. fur. 1 ft and under	25.00
No. 1 RR. hvy. melting	30.00
No. 1 cupola cast.	48.00 to 49.00

Seattle

No. 1 hvy. melting	\$25.00
No. 2 hvy. melting	21.00
No. 1 bundles	21.50
No. 2 bundles	17.00
No. 3 bundles	13.00
No. 1 cupola cast.	37.00
Mixed yard cast.	35.00

Hamilton, Ont.

No. 1 hvy. melting	\$22.00
No. 2 hvy. melting	19.00
No. 1 bundles	22.00
No. 2 bundles	19.00
Mixed steel scrap	16.00
Bushings	17.00
Bush., new fact prep'd	20.00
Bush., new fact unprep'd	16.00
Short steel turnings	12.00
Mixed bor. and turn.	13.00
Rails, remelting	31.00
Cast scrap	\$42.00 to 45.00

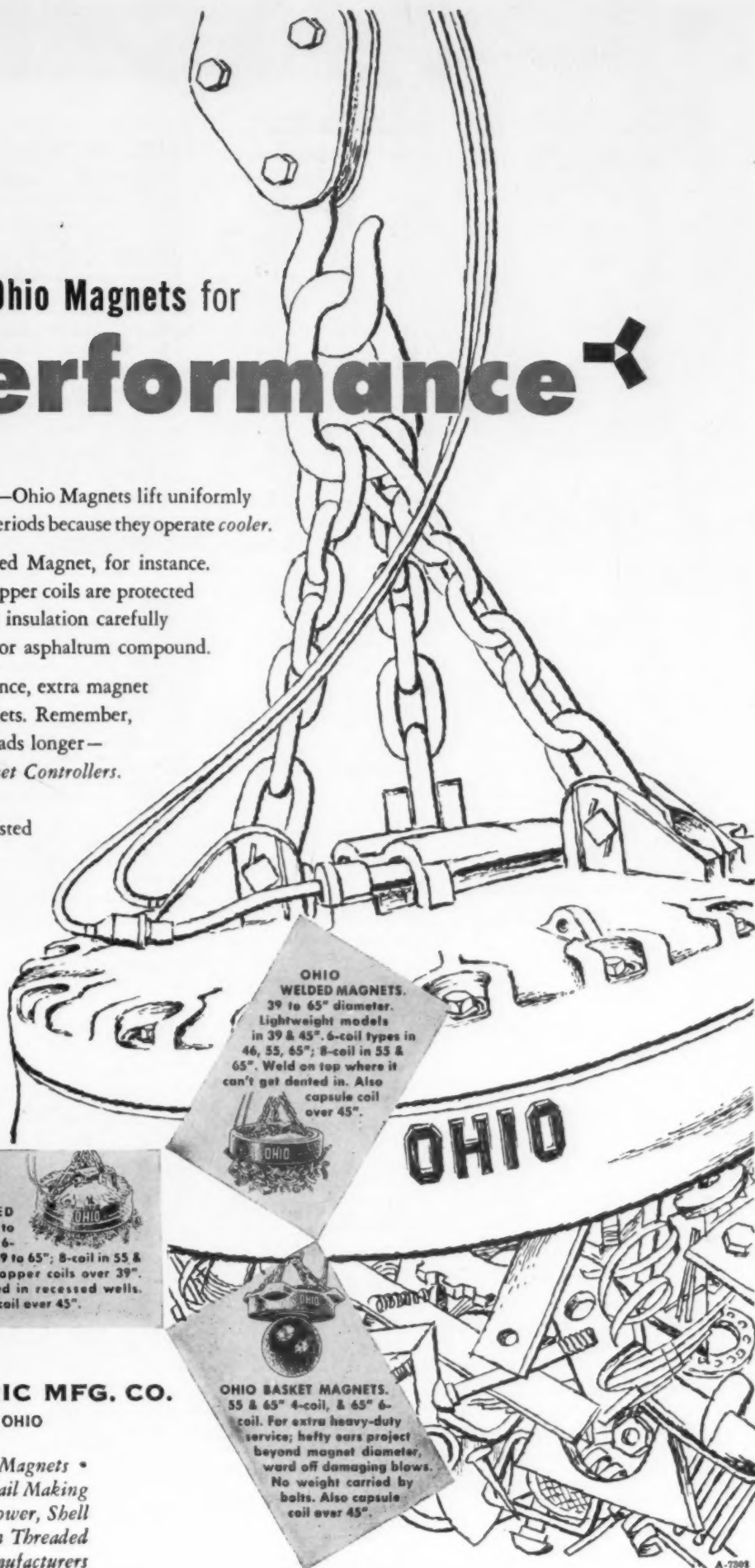
You can't beat Ohio Magnets for

performance

Morning . . . noon . . . night—Ohio Magnets lift uniformly larger loads over extended periods because they operate *cooler*.

Take this husky Ohio Bolted Magnet, for instance. Heavy-duty strap-wound copper coils are protected by longer-lasting inorganic insulation carefully sealed with non-remelting or asphaltum compound.

For extra magnet performance, extra magnet value—specify Ohio Magnets. Remember, Ohio Magnets lift larger loads longer—*especially with Ohio Magnet Controllers*. Send for Bulletin 112. Offices in principal cities listed in Classified Directory.



OHIO WELDED MAGNETS. 39 to 65" diameter. Lightweight models in 39 & 45". 6-coil types in 46, 55, 65"; 8-coil in 55 & 65". Weld on top where it can't get dented in. Also capsule coil over 45".

OHIO BOLTED MAGNETS. 12 to 65" diameter. 6-coil types in 39 to 65"; 8-coil in 55 & 65". Strap copper coils over 39". Bolts protected in recessed wells. Also capsule coil over 45".

OHIO BASKET MAGNETS. 55 & 65" 4-coil, & 45" 6-coil. For extra heavy-duty service; hefty ears project beyond magnet diameter, ward off damaging blows. No weight carried by bolts. Also capsule coil over 45".

ohio
ELECTRIC

CHESTER BLAND
President

THE OHIO ELECTRIC MFG. CO.
5400 DUNHAM RD. • CLEVELAND, OHIO

Ohio Also Makes Separation Magnets • Heavy-Duty Electric Hoists • Nail Making Machines • Fractional Horsepower, Shell and Torque Motors • Precision Threaded Parts for Aircraft Engine Manufacturers

August 5, 1954

Comparison of Prices

(Effective Aug. 3, 1954)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland Youngstown.

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

	Aug. 3 1954	July 27 1954	July 6 1954	Aug. 4 1954
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	4.05¢	4.05¢	4.05¢	3.925¢
Cold-rolled sheets	4.95	4.95	4.95	4.775
Galvanized sheets (10 ga.)	5.45	5.45	5.45	5.275
Hot-rolled strip	4.05	4.05	4.05	3.925
Cold-rolled strip	5.82	5.82	5.82	5.575
Plate	4.237	4.237	4.237	4.10
Plates wrought iron	9.30	9.30	9.30	9.00
Stainl's C-R strip (No. 302)	41.50	41.50	41.50	41.50
Tin and Terneplate: (per base box)				
Tinplate (1.50 lb.) cokes	\$8.95	\$8.95	\$8.95	\$8.95
Tinplate, electro (0.50 lb.)	7.65	7.65	7.65	7.65
Special coated mfg. ternes	7.75	7.75	7.75	7.75
Bars and Shapes: (per pound)				
Merchant bars	4.312¢	4.312¢	4.312¢	4.15¢
Cold-finished bars	5.40	5.40	5.40	5.20
Alloy bars	5.075	5.075	5.075	4.875
Structural shapes	4.25	4.25	4.25	4.10
Stainless bars (No. 302)	\$5.50	\$5.50	\$5.50	\$5.50
Wrought iron bars	10.40	10.40	10.40	10.05
Wire: (per pound)				
Bright wire	5.75¢	5.75¢	5.75¢	5.525¢
Rails: (per 100 lb.)				
Heavy rails	\$4.45	\$4.45	\$4.45	\$4.325
Light rails	5.35	5.35	5.35	5.20
Semifinished Steel: (per net ton)				
Re-rolling billets	\$64.00	\$64.00	\$64.00	\$62.00
Slabs, re-rolling	64.00	64.00	64.00	62.00
Forging billets	78.00	78.00	78.00	75.50
Alloy blooms, billets, slabs	86.00	86.00	86.00	82.00
Wire Rod and Skelp: (per pound)				
Wire rods	4.675¢	4.675¢	4.675¢	4.525¢
Skelp	3.90	3.90	3.90	3.75
Finished Steel Composite: (per pound)				
Base price	4.801¢	4.801¢	4.801¢	4.634¢

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Steel Scrap Composite

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

	Aug. 3 1954	July 27 1954	July 6 1954	Aug. 4 1954
Pig Iron: (per gross ton)				
Foundry, del'd Phila.	\$61.19	\$61.19	\$61.19	\$62.19
Foundry, Valley	56.50	56.50	56.50	56.50
Foundry, Southern, Cin'ti	60.43	60.43	60.43	60.43
Foundry, Birmingham	52.88	52.88	52.88	52.88
Foundry, Chicago	56.50	56.50	56.50	56.50
Basic del'd Philadelphia	60.27	60.27	60.27	61.27
Basic, Valley furnace	56.00	56.00	56.00	56.00
Malleable, Chicago	56.50	56.50	56.50	56.50
Malleable, Valley	56.50	56.50	56.50	56.50
Ferromanganese, cents per lb.	10.00¢	10.00¢	10.00¢	10.00¢
‡ 76 pct Mn base.				
Pig Iron Composite: (per gross ton)				
Pig iron	\$56.59	\$56.59	\$56.59	\$56.76
Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	\$29.50	\$28.50	\$28.50	\$45.50
No. 1 steel, Phila. area	24.50	24.00	22.75	44.25
No. 1 steel, Chicago	29.50	29.50	29.00	40.50
No. 1 bundles, Detroit	23.50	22.00	22.50	45.50
Low phos., Youngstown	32.50	30.50	29.50	40.50
No. 1 mach'y cast, Pittsburgh	42.50	42.50	42.50	40.50
No. 1 mach'y cast, Philadel'a.	39.50	39.50	39.50	40.50
No. 1 mach'y cast, Chicago	39.50	39.50	39.50	40.50
Steel Scrap Composite: (per gross ton)				
No. 1 heavy melting scrap	\$27.83	\$27.33	\$26.75	\$44.58
Coke, Connellville: (per net ton at oven)				
Furnace coke, prompt	\$14.38	\$14.38	\$14.38	\$14.75
Foundry coke, prompt	16.75	16.75	16.75	17.25
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electrolytic, Conn.	30.00	30.00	30.00	29.50†
Copper, Lake, Conn.	30.00	30.00	30.00	30.125
Tin, Straits, New York	95.50†	96.125*	96.75	78.25
Zinc, East St. Louis	11.00	11.00	11.00	11.00
Lead, St. Louis	13.80	13.80	13.80	13.50
Aluminum, virgin ingot	21.50	21.50	21.50	21.50
Nickel, electrolytic	63.08	63.08	63.08	63.08
Magnesium, ingot	27.75	27.75	27.75	27.00
Antimony, Laredo, Tex.	28.50	28.50	28.50	34.50
† Tentative. ‡ Average. * Revised.				

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

← To identify producers, see Key on P. 161 →

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Bethlehem B3	58.00	58.50	59.00	59.50	
Birmingham B3	52.38	52.88			
Birmingham W9	52.38	52.88			
Birmingham U4	52.38	52.88	56.50		
Buffalo R3	56.00	56.50	57.00		
Buffalo H1	56.00	56.50	57.00		
Buffalo W6	56.00	56.50	57.00		
Chicago I4	56.00	56.50	56.50	57.00	
Cleveland A5	56.00	56.50	56.50	57.00	61.00
Cleveland R3	56.00	56.50	56.50	57.00	
Danversfield L3	52.50	52.50	52.50		
Duluth I4	56.00	56.50	56.50	57.00	
Erie I4	56.00	56.50	56.50	57.00	
Everett M6		61.00	61.50		
Fantana K7	62.00	62.50			
Genova, Utah C7	56.00	56.50			
Granite City G2	57.90	58.40	58.90		
Hubbard Y1			56.50		
Minnequa C6	58.00	59.00	59.00		
Monessen P6	56.00				
Neville Isl. P4	56.00	56.50	56.50		
Pittsburgh U1	56.00			57.00	
Sharpsville S3	56.00	56.50	56.50	57.00	
Steelton B3	58.00	58.50	59.00	59.50	64.00
Swadeland A2	58.00	58.50	59.00	59.50	
Toledo I4	56.00	56.50	56.50	57.00	
Troy, N. Y. R3	58.00	58.50	59.00	59.50	64.00
Youngstown Y1			56.50	57.00	
N. Tonawanda T1		56.50	57.00		

DIFFERENTIALS: Add 50¢ per ton for each 0.25 pct silicon over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct) 50¢ per ton for each 0.50 pct manganese over 1 pct., \$2 per ton for .05 to 0.75 pct nickel, \$1 for each additional 0.25 pct nickel. Subtract 38¢ per ton for phosphorus, content 0.70 and over.
Silvery Iron: Buffalo, H1, \$68.25; Jackson, J1, G1, \$67.00. Add \$1.50 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 17 pct. Add \$1 per ton for 0.75 pct. or more phosphorus. Add 75¢ for each 0.50 pct. manganese over 1.0 pct. Bessemer ferroalloy prices are \$1 over comparable silvery iron.

STAINLESS STEEL

Base price cents per lb. (f.o.b. mill)

Product	301	302	303	304	316	321	347	410	416	438
Ingot, re-rolling	16.25	17.25	18.75	18.25	28.00	22.75	24.50	14.00		14.15
Slabs, billets, re-rolling	20.50	22.75	24.75	23.75	36.25	29.50	32.25	18.25		18.50
Forg. discs, die blocks, rings	38.50	38.50	41.50	40.50	60.00	45.50	50.75	31.00	31.75	31.75
Billets, forging	29.50	29.75	32.25	31.00	46.50	35.25	39.50	24.00	24.50	24.50
Bars, wires, structurals	35.25	35.50	38.25	37.25	55.50	42.00	46.75	28.75	29.25	29.25
Plates	37.25	37.50	39.75	39.75	58.75	45.75	51.25	30.00	30.50	30.50
Sheets	41.25	41.50	48.75	43.75	62.75	50.50	59.25	34.25	41.25	34.75
Strip, hot-rolled	29.75	32.00	36.75	34.25	53.25	41.00	46.50	26.25		27.00
Strip, cold-rolled	38.25	41.50	45.50	43.75	62.75-63.00	50.50-50.75	59.25	34.25	41.25	34.75

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., C11; Brackenridge, Pa., A3; Butler, Pa., A7; McKeesport, Pa., U1; Washington, Pa., W2, J2; Baltimore, El; Middletown, O., A7; Massillon, O., R3; Gary, U1; Bridgeville, Pa., U2; New Castle, Ind., I2; Ft. Wayne, J4.

Strip: Midland, Pa., C11; Cleveland, A5; Carnegie, Pa., S9; McKeesport, Pa., F1; Reading, Pa., C2; Washington, Pa., W2; W. Leeburg, Pa., A3; Bridgeville, Pa., U2; Detroit, M2; Canton-Massillon, O., R3; Middletown, O., A7; Harrison, N. J., D3; Youngstown, C5; Sharon, Pa., S1; Butler, Pa., A7; Wallingford, Conn., U3 (25¢ per lb higher) W1 (25¢ per lb higher); New Bedford, Mass., R6.

Bar: Baltimore, A5; Massillon, O., R3; McKeesport, Pa., F1; Ft. Wayne, J4; Harrison, N. J., D3; Baltimore, El; Dunkirk, A3; Monessen, P1; Syracuse, C11; Bridgeville, U2.

Wire: Waukegan, A5; Massillon, O., R3; McKeesport, Pa., F1; Ft. Wayne, J4; Harrison, N. J., D3; Baltimore, El; Dunkirk, A3; Monessen, P1; Syracuse, C11; Bridgeville, U2.

Structurals: Baltimore, A7; Massillon, O., R3; Chicago, Ill., J4; Watervliet, N. Y., A3; Syracuse, C11.

Plates: Brackenridge, Pa., A3; Chicago, U1; Munhall, Pa., U1; Midland, Pa., C11; New Castle, Ind., I2; Middletown, A7; Washington, Pa., J2; Cleveland, Massillon, R3; Coatesville, Pa., C15.

Forged discs, die blocks, rings: Pittsburgh, C11; Syracuse, C11; Ferndale, Mich., A3; Washington, Pa., J2.

Forging billets: Midland, Pa., C11; Baltimore, A7; Washington, Pa., J2; McKeesport, F1; Massillon, Canton, O., R3; Watervliet, A3; Pittsburgh, Chicago, U1; Syracuse, C11.

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There's a lot that goes into the manufacturing of anodes and chemicals—a lot more than just following a formula. There's quality control, strict adherence to the rigid H-VW-M standards—constant checking for purity—and in anodes there's the important question of design as well as operating characteristics. That goes not only for all the standard H-VW-M anodes and chemicals, but also for the special types that are made for specific purposes.

The standards of purity of H-VW-M anodes and plating chemicals are but a few of the many results of H-VW-M's more than eighty years of constant development in electroplating... a continuous policy best summed up in Platemanship—your working guarantee of the best that industry has to offer, not only in anodes and chemicals, but in every phase of plating and polishing.

*here's how we prove the purity
of our anodes and chemicals...*

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HANSON-VAN WINKLE-MUNNING CO., MATAWAN, N. J.

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INDUSTRY'S WORKSHOP FOR THE FINEST IN PLATING AND POLISHING PROCESSES • EQUIPMENT • SUPPLIES

August 5, 1954

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IRON AGE		<i>Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.</i>												
Steel Prices (Effective Aug. 3, 1954)		BILLETS, BLOOMS, SLABS			PIL-ING	SHAPES STRUCTURALS			STRIP					
		Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton	Sheet Steel	Carbon	Hi Str. Low Alloy	Carbon Wide-Flange	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot-rolled	Alloy Cold-rolled
EAST	Bethlehem, Pa.			\$56.00 B3		4.30 B3	6.45 B3	4.30 B3						
	Buffalo, N. Y.	\$64.00 B3	\$78.00 B3, R3	\$86.00 B3, R3	5.075 B3	4.30 B3	6.45 B3	4.30 B3	4.05 B3, R3	5.75 B3, R7	6.15 B3	8.425 B3		
	Claymont, Del.													
	Coatesville, Pa.													
	Conschocken, Pa.								4.175 A2		6.15 A2			
	New Bedford, Mass.									6.20 R6				
	Harrison, N. J.													
	Johnstown, Pa.	\$64.00 B3	\$78.00 B3	\$86.00 B3		4.30 B3	6.45 B3		4.05 B3					
	Fairless, Pa.													
	New Haven, Conn.									6.20 D1 6.50 A5				
	Phoenixville, Pa.					3.80 P2		3.80 P2						
	Sparrows Pt., Md.								4.05 B3	5.75 B3	6.15 B3	8.425 B3		
	Wallingford, Conn.									6.20 W1				
	Worcester, Mass. Pawtucket, R. I.									6.30 N7 6.60 A5				12.75 A5 12.00 N7
MIDDLE WEST	Alton, Ill.								4.225 L1					
	Ashland, Ky.								4.05 A7					
	Canton-Massillon, Ohio			\$82.00 T3 \$86.00 R3										12.45 G4
	Chicago, Ill.	\$64.00 U1	\$78.00 R3, U1, W8	\$86.00 U1, W8, R3	5.075 U1	4.25 U1, W8	6.40 U1, Y1	4.25 U1	4.05 A1, N4, W8	5.85 A1				
	Cleveland, Ohio		\$78.00 R3							5.75 A5, J3		8.60 A5		12.45 A5
	Detroit, Mich.			\$88.00 R5					4.20 G3, M2	5.90 D1, D2, G3, M2, P11	6.30 G3	8.35 D2 8.75 G3		
	Duluth, Minn.													
	Gary, Ind. Harbor, Indiana	\$64.00 U1	\$78.00 U1	\$86.00 U1, Y1	5.075 I3	4.25 I3, U1	6.40 U1, I3, Y1		4.05 I3, U1, Y1	6.00 I3	6.15 U1, I3, Y1	8.60 Y1	6.70 U1, Y1	
	Sterling, Ill.								4.15 N4					
	Indianapolis, Ind.									5.90 C5				
	Newport, Ky.												6.70 N5	
	Middletown, Ohio									5.75 A7				
	Niles, Warren, Ohio Sharon, Pa.								4.05 S1, R3	5.75 S1, R3, T4	6.15 S1, R3	8.60 S1, R3	6.70 S1	12.45 S1
	Pittsburgh, Pa. Midland, Pa. Butler, Pa.	\$64.00 U1, J3	\$78.00 J3, U1, C11	\$86.00 U1, C11	5.075 U1	4.25 J3, U1	6.40 J3, U1	4.25 U1	4.05 S7, P6	5.75 B4, J3, S7			6.70 S9	12.45 S9
	Portsmouth, Ohio								4.05 P7	5.75 P7				
	Weirton, Wheeling, Follansbee, W. Va.					4.25 W3			4.05 W3	5.75 F3, W3	6.15 W3	8.60 W3		
	Youngstown, Ohio		\$78.00 C10	\$86.00 Y1, C10		4.25 Y1	6.40 Y1		4.05 U1, Y1	5.75 Y1, C5	6.15 U1, Y1	8.60 Y1	6.70 U1, Y1	12.45 C5
WEST	Fontana, Cal.	\$72.00 K1	\$86.00 K1	\$105.00 K1		4.90 K1	7.05 K1	5.25 K1	4.825 K1	7.65 K1	7.25 K1		8.10 K1	14.55 K1
	Geneva, Utah		\$78.00 C7			4.25 C7	6.40 C7							
	Kansas City, Mo.					4.85 S2	7.00 S2		4.65 S2				7.30 S2	
	Los Angeles, Torrance, Cal.		\$87.50 B2	\$106.00 B2		4.95 B2, C7	7.10 B2		4.80 B2, C7	7.80 C1				
	Minneapolis, Colo.					4.70 C6			5.15 C6					
	San Francisco, Niles, Pittsburg, Cal.		\$87.50 B2			4.90 B2 4.95 P9	7.05 B2		4.80 B2, C7					
	Seattle, Wash.		\$91.50 B2			5.00 B2	7.15 B2		5.05 B2, P12					
SOUTH	Atlanta, Ga.								4.25 A8					
	Fairfield, Ala. City, Birmingham, Ala.	\$64.00 T2	\$78.00 T2			4.25 T2, C16 4.28 R3	6.40 T2		4.05 R3, T2, C16		6.15 T2			
	Houston, Tex.		\$85.00 S2	\$93.00 S2		4.65 S2	6.85 S2		4.45 S2				7.10 S2	

Steel
Prices(Effective
Aug. 3, 1954)

SHEETS

WIRE
ROD

TINPLATE†

BLACK
PLATE

	Hot-rolled 18 ga. & hvyr.	Cold- rolled	Galvanized 10 ga.	Enamel- ing 12 ga.	Long Terns 10 ga.	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.	Hot- rolled 19 ga.		Cokes* 1.25-lb. base box	Electro* 0.25-lb. base box	Holloware Enameling 29 ga.
Bethlehem, Pa.													
Buffalo, N. Y.	4.05 B3	4.95 B3				6.10 B3	7.50 B3			4.675 W6			
Claymont, Del.											† Special coated mfg. terms deduct 95¢ from 1.25-lb coke base box price. Can-making quality blackplate 55 to 128 lb deduct \$2.20 from 1.25-lb coke base box. * COKES: 1.50 lb add 25¢. ELECTRO: 0.50-lb add 25¢; 0.75-lb add 65¢; 1.00-lb add \$1.20.		
Coatesville, Pa.													
Canabrooken, Pa.	4.10 A2					6.10 A2							
Harrisburg, Pa.													
Hartford, Conn.													
Johnstown, Pa.										4.675 B3			
Fairless, Pa.	4.10 U1	5.00 U1				6.15 U1	7.55 U1				\$8.80 U1	\$7.50 U1	
New Haven, Conn.													
Phoenixville, Pa.													
Sparrows Pt., Md.	4.05 B3	4.95 B3	5.45 B3			6.10 B3	7.50 B3	8.20 B3		4.775 B3	\$8.80 B3	\$7.50 B3	
Worcester, Mass.										4.975 A5			
Tranton, N. J.													
Alton, Ill.										4.85 L1			
Ashland, Ky.	4.05 A7		5.45 A7	5.375 A7									
Canton-Massillon, Dover, Ohio			5.45 R1, R3						5.175 R1				
Chicago, Joliet, Ill.	4.05 A1, W8					6.10 U1				4.675 A5, N4, R3			
Sterling, Ill.										4.775 N4			
Cleveland, Ohio	4.05 J3, R3	4.95 J3, R3		5.375 R3		6.10 J3, R3	7.50 J3, R3			4.675 A5			
Detroit, Mich.	4.20 G3, M2	5.10 G3				6.25 G3	7.65 G3						
Newport, Ky.	4.06 N5		5.45 N5										
Gary, Ind. Harbor, Indiana	4.05 J3, U1, Y1	4.95 J3, U1, Y1	5.45 U1, I3	5.375 J3, U1	5.85 U1	6.10 U1, I3, Y1	7.50 U1, Y1				\$8.70 J3, U1, Y1	\$7.40 J3, U1	6.10 U1, Y1
Granite City, Ill.	4.25 G2	5.15 G2	5.65 G2	5.575 G2								\$7.60 G2	6.30 G2
Kokomo, Ind.	4.15 C9		5.55 C9						5.20 C9	4.775 C9			
Mansfield, Ohio					5.85 E2				5.175 E2				
Middletown, Ohio		4.95 A7		5.375 A7	5.85 A7								
Niles, Ohio Sharon, Pa.	4.05 S1, R3 5.30 N3	4.95 R3 5.975 N3	5.45 N3	6.725 N3	5.85 N3	6.10 S1, R3	7.50 R3				\$8.70 R3	\$7.40 R3	
Pittsburgh, Pa. Midland, Pa. Butler, Pa.	4.05 J3, U1, P6	4.95 J3, U1, P6	5.45 U1	5.375 U1		6.10 J3, U1	7.50 J3, U1	8.20 U1		4.675 A5 4.875 P6	\$8.70 J3, U1	\$7.40 J3, U1	6.10 U1
Portsmouth, Ohio	4.05 P7	4.95 P7								4.675 P7			
Weirton, Wheeling, Fallonsbee, W. Va.	4.05 W3, W5	4.95 W3, W5, F3	5.45 W3, W5		5.85 W3, W5	6.10 W3	7.50 W3				\$8.70 W3, W5	\$7.40 W3, W5	6.10 F3, W5
Youngstown, Ohio	4.05 U1, Y1	4.95 Y1		5.375 Y1		6.10 U1, Y1	7.50 Y1			4.675 Y1			
Fontana, Cal.	4.825 K1	6.05 K1				6.875 K1	8.55 K1			5.475 K1			
Geneva, Utah	4.15 C7					6.45 C7							
Kansas City, Mo.													
Los Angeles, Torrance, Cal.										5.475 C7, B2			
Minneapolis, Colo.										4.925 C6			
San Francisco, Niles, Pittsburg, Cal.	4.75 C7	5.90 C7	6.20 C7							5.325 C7	\$9.45 C7	\$8.15 C7	
Seattle, Wash.													
Atlanta, Ga.													
Fairfield, Ala. Alabama City, Ala.	4.05 R3, T2	4.95 T2	5.45 R3, T2			6.10 T2			5.35 R3	4.675 T2, R3	\$8.80 T2	\$7.50 T2	
Houston, Texas	4.45 S2									5.075 S2			

EAST

MIDDLE WEST

WEST

SOUTH

IRON AGE		<i>Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.</i>										
Prices Steel		BARS						PLATES				WIRE
<i>(Effective Aug. 3, 1954)</i>		Carbon Steel	Reinforc- ing	Cold Finished	Alloy Hot- rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfg's. Bright
EAST	Bethlehem, Pa.				5.075 B3	6.625 B3	6.45 B3					
	Buffalo, N. Y.	4.30 B3 4.33 R3	4.30 B3 4.33 R3	5.45 B5	5.075 B3 5.105 R3	6.625 B3, B5	6.45 B3	4.225 B3			6.45 B3	5.75 W6
	Claymont, Del.							4.225 C4		5.80 C4		
	Coatesville, Pa.							4.225 L4		5.80 L4		
	Conshohocken, Pa.							4.225 A2	5.275 A2		6.45 A2	
	Harrisburg, Pa.							3.85 C3	5.15 C3			
	Hartford, Conn.			5.90 R3		6.925 R3						
	Johnstown, Pa.	4.30 B3	4.30 B3		5.075 B3		6.45 B3	4.225 B3		5.80 B3	6.45 B3	5.75 B3
	Fairless, Pa.	4.45 U1	4.45 U1		5.225 U1							
	Newark, N. J.			5.85 W10		6.80 W10						
	Camden, N. J.			5.85 P10								
	Putnam, Conn.			5.95 W10								
	Sparrows Pt., Md.		4.30 B3					4.225 B3		5.80 B3	6.45 B3	5.85 B3
MIDDLE WEST	Palmer, Worcester, Mansfield, Mass.			5.95 B5		6.925 A5 7.075 B5						6.85 A5, W6
	Alton, Ill.	4.50 L1										5.925 L1
	Ashland, Newport, Ky.							4.225 A7, N5		5.80 N5		
	Canton-Massillon, Mansfield, Ohio			5.40 R2 5.44 R3	4.875 T5 5.115 R3	6.325 T5 6.625 R2 6.665 R3		4.225 E2				
	Chicago, Joliet, Ill.	4.30 U1, N4, W8 4.37 R3	4.30 N4 4.37 R3	5.40 A5, W10, W8, B5, L2	5.075 U1, W8 5.145 R3	6.625 A5, W8, W10, L2, B5		4.225 U1, W8, J3, A1	5.275 U1	5.80 U1	6.45 U1	5.75 A5, R3, N4, W7
	Cleveland, Ohio	4.36 R3	4.36 R3	5.40 A5, C13		6.625 A5 6.665 C13		4.225 J3 4.285 R3	5.275 J3		6.45 J3	5.75 A5, C13
	Detroit, Mich.	4.45 R5, G3		5.55 R5 5.60 B5, P8 5.65 P3	5.175 R5 5.225 G3	6.725 R5 6.825 B5, P3, P8	6.60 G3	4.375 G3			6.60 G3	
	Duluth, Minn.											5.75 A5
	Gary, Ind. Harbor, Crawfordsville	4.30 J3, U1, Y1	4.30 J3, U1, Y1	5.40 M5 5.47 R3	5.075 J3, U1, Y1	6.525 M5 6.695 R3	6.45 U1, J3, Y1	4.225 J3, U1, Y1	5.275 J3	5.80 U1	6.45 U1, J3, Y1	5.85 M4
	Granite City, Ill.							4.425 G2				
	Kokomo, Ind.											5.85 C9
	Sterling, Ill.	4.40 N4	4.40 N4									5.85 N4
	Niles, Ohio Sharon, Pa.	4.34 R3						4.225 S1		5.80 S1	6.45 S1	
WEST	Pittsburgh, Pa. Midland, Pa.	4.30 J3, U1, C11	4.30 J3, U1	5.40 A5, C8, C11 J3, W10, B4 5.46 R3	5.075 U1, C11	6.625 A5, C11, W10, C8 6.685 R3	6.45 J3, U1	4.225 J3, U1	5.275 U1	5.80 U1	6.45 J3, U1	5.75 A5, J3, P6
	Portsmouth, Ohio											5.75 P7
	Weirton, Wheeling, Follansbee, W. Va.	4.30 W3						4.225 W3, W5				
	Youngstown, Ohio	4.30 U1, Y1 C10 4.35 R3	4.30 U1, Y1 4.35 R3	5.40 F2, Y1, C10	5.075 U1, Y1, C10	6.625 Y1, C10 6.665 F2	6.45 U1, Y1	4.225 U1, Y1		5.80 Y1	6.45 Y1	5.75 Y1
	Emeryville, Cal.	5.05 J5	5.05 J5									
	Fontana, Cal.	5.00 K1	5.00 K1		6.125 K1		7.70 K1	4.875 K1		6.45 K1	7.15 K1	
	Geneva, Utah							4.225 C7			6.45 C7	
	Kansas City, Mo.	4.90 S2	4.90 S2		5.675 S2		7.05 S2					6.35 S2
	Los Angeles, Torrance, Cal.	5.00 B2, C7	5.00 B2, C7	6.85 R3 7.16 R3	6.125 B2		7.15 B2					6.70 B2
	Minnequa, Colo.	4.75 C6	4.75 C6					5.075 C6				5.90 C6
	Portland, Ore.	4.90 O2										
	San Francisco, Niles, Pittsburg, Cal.	5.00 C7, P9 5.05 B2	5.00 C7, P9 5.05 B2				7.20 B2					6.70 C7
	Seattle, Wash.	5.05 B2, P12, N6	5.05 B2, P12				7.20 B2	5.125 B2		6.70 B2	7.35 B2	
SOUTH	Atlanta, Ga.	4.50 A8	4.50 A8									5.95 A8
	Fairfield, Ala. City, Birmingham, Ala.	4.30 T2, C16 4.33 R3	4.30 T2, C16 4.33 R3				6.45 T2	4.225 T2 4.255 R3			6.45 T2	5.75 A3, T2
	Houston, Ft. Worth, Lone Star, Tex.	4.70 S2	4.70 S2		5.475 S2		6.85 S2	4.40 L3 4.625 S2		6.20 S2	6.85 S2	6.25 S2

Steel Prices

(Effective Aug. 3, 1954)

Key to Steel Producers

With Principal Offices

A1 Acme Steel Co., Chicago
 A2 Alan Wood Steel Co., Conahohocken, Pa.
 A3 Allegheny Ludlum Steel Corp., Pittsburgh
 A4 American Cladmetals Co., Carnegie, Pa.
 A5 American Steel & Wire Div., Cleveland
 A6 Angell Nail & Chaplet Co., Cleveland
 A7 Arco Steel Corp., Middletown, O.
 A8 Atlantic Steel Co., Atlanta, Ga.
 B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
 B2 Bethlehem Pacific Coast Steel Corp., San Francisco
 B3 Bethlehem Steel Co., Bethlehem, Pa.
 B4 Blair Strip Steel Co., New Castle, Pa.
 B5 Blum & Laughlin, Inc., Harvey, Ill.
 C1 Calstrip Steel Corp., Los Angeles
 C2 Carpenter Steel Co., Reading, Pa.
 C3 Central Iron & Steel Co., Harrisburg, Pa.
 C4 Claymont Products Dept., Claymont, Del.
 C5 Cold Metal Products Co., Youngstown, O.
 C6 Colorado Fuel & Iron Corp., Denver
 C7 Columbia Geneva Steel Div., San Francisco
 C8 Columbia Steel & Shifting Co., Pittsburgh
 C9 Continental Steel Corp., Kokomo, Ind.
 C10 Copperweld Steel Co., Pittsburgh, Pa.
 C11 Crucible Steel Co. of America, New York
 C12 Cumberland Steel Co., Cumberland, Md.
 C13 Cuyahoga Steel & Wire Co., Cleveland
 C14 Compressed Steel Shifting Co., Readville, Mass.
 C15 C. O. Carlson, Inc., Thorndale, Pa.
 C16 Connors Steel Div., Birmingham

D1 Detroit Steel Corp., Detroit
 D2 Detroit Tube & Steel Div., Detroit
 D3 Driver Harris Co., Harrison, N. J.
 D4 Dickson Weatherproof Nail Co., Evanston, Ill.

E1 Eastern Stainless Steel Corp., Baltimore
 E2 Empire Steel Co., Mansfield, O.

F1 Firth Sterling, Inc., McKeesport, Pa.
 F2 Fitzmaurice Steel Corp., Youngstown
 F3 Follansbee Steel Corp., Follansbee, W. Va.

G1 Globe Iron Co., Jackson, O.

G2 Granite City Steel Co., Granite City, Ill.
 G3 Great Lakes Steel Corp., Detroit
 G4 Greer Steel Co., Dover, O.

H1 Hanna Furnace Corp., Detroit

I2 Ingersoll Steel Div., Chicago
 I3 Inland Steel Co., Chicago
 I4 Interlake Iron Corp., Cleveland

J1 Jackson Iron & Steel Co., Jackson, O.
 J2 Jessop Steel Corp., Washington, Pa.
 J3 Jones & Laughlin Steel Corp., Pittsburgh
 J4 Joslyn Mfg. & Supply Co., Chicago
 J5 Judson Steel Corp., Emeryville, Calif.

K1 Kaiser Steel Corp., Fontana, Cal.
 K2 Keystone Steel & Wire Co., Peoria
 K3 Koppers Co., Granite City, Ill.

L1 Laclede Steel Co., St. Louis
 L2 La Salle Steel Co., Chicago
 L3 Lone Star Steel Co., Dallas
 L4 Lukens Steel Co., Coatesville, Pa.

M1 Mahoning Valley Steel Co., Niles, O.
 M2 McLouth Steel Corp., Detroit
 M3 Mercer Tube & Mfg. Co., Sharon, Pa.
 M4 Mid-States Steel & Wire Co., Crawfordsville, Ind.
 M5 Monarch Steel Co., Inc., Hammond, Ind.
 M6 Mystic Iron Works, Everett, Mass.

N1 National Supply Co., Pittsburgh
 N2 National Tube Div., Pittsburgh
 N3 Niles Rolling Mill Div., Niles, O.
 N4 Northwestern Steel & Wire Co., Sterling, Ill.
 N5 Newport Steel Corp., Newport, Ky.
 N6 Northwest Steel Rolling Mills, Seattle
 N7 Newman Crosby Steel Co., Pawtucket, R. I.

O1 Oliver Iron & Steel Co., Pittsburgh
 O2 Oregon Steel Mills, Portland

P1 Page Steel & Wire Div., Monessen, Pa.
 P2 Phoenix Iron & Steel Co., Phoenixville, Pa.
 P3 Pilgrim Drawn Steel Div., Plymouth, Mich.
 P4 Pittsburgh Coke & Chemical Co., Pittsburgh
 P5 Pittsburgh Screw & Bolt Co., Pittsburgh
 P6 Pittsburgh Steel Co., Pittsburgh
 P7 Portsmouth Div., Detroit Steel Corp., Detroit

P8 Plymouth Steel Co., Detroit
 P9 Pacific States Steel Co., Niles, Cal.
 P10 Precision Drawn Steel Co., Camden, N. J.
 P11 Production Steel Strip Corp., Detroit
 P12 Pacific Steel Rolling Mills, Seattle

R1 Reeves Steel & Mfg. Co., Dover, O.
 R2 Reliance Div., Eaton Mfg. Co., Massillon, O.
 R3 Republic Steel Corp., Cleveland
 R4 Roebbing Sons Co., John A., Trenton, N. J.
 R5 Rotary Electric Steel Co., Detroit
 R6 Rodney Metals, Inc., New Bedford, Mass.
 R7 Rome Strip Steel Co., Rome, N. Y.

S1 Sharon Steel Corp., Sharon, Pa.
 S2 Sheffield Steel Corp., Kansas City
 S3 Shenango Furnace Co., Pittsburgh
 S4 Simonds Saw & Steel Co., Fitchburg, Mass.
 S5 Sweet's Steel Co., Williamsport, Pa.
 S6 Standard Forging Corp., Chicago
 S7 Stanley Works, New Britain, Conn.
 S8 Superior Drawn Steel Co., Monaca, Pa.
 S9 Superior Steel Corp., Carnegie, Pa.

T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
 T2 Tennessee Coal & Iron Div., Fairfield
 T3 Tennessee Products & Chem. Corp., Nashville
 T4 Thomas Strip Div., Warren, O.
 T5 Timken Steel & Tube Div., Canton, O.
 T6 Tremont Nail Co., Wareham, Mass.
 T7 Texas Steel Co., Fort Worth

U1 United States Steel Corp., Pittsburgh
 U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.
 U3 Fred Ulbrich & Sons, Wallingford, Conn.
 U4 U. S. Pipe & Foundry Co., Birmingham

W1 Wallingford Steel Co., Wallingford, Conn.
 W2 Washington Steel Corp., Washington, Pa.
 W3 Weirton Steel Co., Weirton, W. Va.
 W4 Wheatland Tube Co., Wheatland, Pa.
 W5 Wheeling Steel Corp., Wheeling, W. Va.
 W6 Wickwire Spencer Steel Div., Buffalo
 W7 Wilson Steel & Wire Co., Chicago
 W8 Wisconsin Steel Co., S. Chicago, Ill.
 W9 Woodward Iron Co., Woodward, Ala.
 W10 Wycoff Steel Co., Pittsburgh
 W11 Worcester Pressed Steel Co., Worcester, Mass.
 Y1 Youngstown Sheet & Tube Co., Youngstown

PIPE AND TUBING

Base discounts (pct) f.o.b. mills. Base price about \$200 per net ton.

	BUTTWELD														SEAMLESS									
	1/2 In.		3/4 In.		1 In.		1 1/4 In.		1 1/2 In.		2 In.		2 1/2-3 In.		2 In.		2 1/2 In.		3 In.		3 1/2-4 In.			
	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.		
STANDARD T. & C.																								
Sparrow Pt. B3	21.75	6.5	24.75	10.5	27.25	14.0	29.75	14.75	30.25	15.75	30.75	16.25	32.25	16.0										
Youngstown R3	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0										
Pontana K1	10.75	+4.5	13.75	+0.5	16.25	3.0	18.75	3.75	19.25	4.75	19.75	5.25	21.25	5.0										
Pittsburgh J3	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0										
Alton, Ill. L1	21.75	6.5	24.75	10.5	27.25	14.0	29.75	14.75	30.25	15.75	30.75	16.25	32.25	16.0	13.5	+1.50	17.5	0.75	20.0	3.25	21.5	4.75		
Sharon M3	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0										
Farless N2	21.75	6.5	24.75	10.5	27.25	14.0	29.75	14.75	30.25	15.75	30.75	16.25	32.25	16.0										
Pittsburgh N1	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0	13.5	+1.50	17.5	0.75	20.0	3.25	21.5	4.75		
Wheeling W5	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0										
Wheatland W4	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0										
Youngstown Y1	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0	13.5	+1.50	17.5	0.75	20.0	3.25	21.5	4.75		
Indiana Harbor Y1	22.75	7.5	25.75	11.5	28.25	15.0	30.75	15.75	31.25	16.75	31.75	17.25	33.25	17.0										
Larain N2	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0	13.5	+1.50	17.5	0.75	20.0	3.25	21.5	4.75		
EXTRA STRONG PLAIN ENDS																								
Sparrow Pt. B3	25.25	11.5	29.25	15.5	31.25	19.0	31.75	17.75	32.25	18.75	32.75	19.25	33.25	18.0										
Youngstown R3	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0										
Farless N2	25.25	11.5	29.25	15.5	31.25	19.0	31.75	17.75	32.25	18.75	32.75	19.25	33.25	18.0										
Pontana K1	14.25		18.25		20.25		20.75		21.25		21.75		22.25											
Pittsburgh J3	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0	14.0		19.0	3.25	21.5	5.75	26.5	10.75		
Alton, Ill. L1	25.25	11.5	29.25	15.5	31.25	19.0	31.75	17.75	32.25	18.75	32.75	19.25	33.25	18.0										
Sharon M3	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0										
Pittsburgh N1	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0			3.25	21.5	5.75	26.5	10.75			
Wheeling W5	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0	14.0		19.0	3.25	21.5	5.75	26.5	10.75		
Wheatland W4	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0										
Youngstown Y1	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0	14.0		19.0	3.25	21.5	5.75	26.5	10.75		
Indiana Harbor Y1	26.25	12.5	30.25	16.5	32.25	20.0	32.75	18.75	33.25	19.75	33.75	20.75	34.25	19.0										
Larain N2	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0	14.0		19.0	3.25	21.5	5.75	26.5	10.75		

Threads only, butt weld and seamless 2 1/4 pt. higher discount. Plain ends, butt weld and seamless, 3-in. and under, 4 1/2 pt. higher discount. Butt weld jobbers' discount, 5 pct. Galvanized discounts based on zinc price in range of over 9¢ to 11¢ incl. per lb. East St. Louis. For each 2¢ change in zinc, discounts vary as follows: 1/2, 3/4 and 1-in., 2 pt.; 1 1/4, 1 1/2 and 2-in., 1 1/2 pt.; 2 1/2 and 3-in., 1 pt. e.g., zinc price in range of over 11¢ to 13¢ would lower discounts; zinc price in range of over 7¢ to 9¢ would increase discounts. East St. Louis zinc price now 11.00¢ per lb.

Steel Prices

(Effective Aug. 3, 1954)

To identify producers, see Key on preceding page

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Treated
Bessemer U1	4.45	5.35	5.425				
So. Chicago R3				7.30			
Ensley T2	4.45	5.35					
Fairfield T2		5.35		7.30		5.275	
Gary U1	4.45	5.35				5.275	
Ind. Harbor B3	4.45		5.425	7.30		5.275	
Johantown B3		5.35					
Joliet U1		5.35	5.425				
Kansas City S2				7.30			11.00
Lackawanna B3	4.45	5.35	5.425			5.275	
Minneapolis C6	4.45	5.85	5.425	7.30		5.275	11.50
Pittsburgh O1					11.00		11.50
Pittsburgh P5						11.00	
Pittsburgh J3				7.30			
Seattle B2				7.80		5.425	11.50
Steelton B3	4.45		5.425			5.275	
Struthers Y1				7.30			
Torrance C7						5.425	
Williamsport S5		5.35					
Youngstown R3				7.30			

ELECTRICAL SHEETS

22-Gage F.o.b. Mill Cents Per Lb	Hot-Rolled (Cut Lengths)*	Cold-Reduced (Coiled or Cut Length)	
		Semi- Processed	Fully Processed
Field	8.025	8.225	
Armature	8.50	8.75	9.25
Elect.	9.10	9.35	9.85
Motor	10.10	10.35	10.85
Dynamo	11.00	11.25	11.75
Trans. 72	11.95	12.20	12.70
Trans. 65	12.50	Grain Oriented	
Trans. 58	13.00	Trans. 80	16.60
Trans. 52	14.00	Trans. 73	17.10

Producing points: Beech Bottom (W5); Brackenridge (A5); Granite City (G2); Indiana Harbor (I3); Mansfield (E2); Newport, Ky. (N5); Niles, O. (N3); Vandergrift (U1); Warren, O. (R3); Zanesville (A7).

* Coils 75¢ higher.

CLAD STEEL

Stainless-carbon	Plate	Sheet
No. 304, 20 pct.		
Coatesville, Pa., L4	*32.7	
Washington, Pa., J2		
Claymont, Del., C4		
New Castle, Ind., I2		32.50
Nickel-carbon		
10 pct. Coatesville, Pa., L4	37.5	
Inconel-carbon		
10 pct. Coatesville, Pa., L4	46.10	
Monel-carbon		
10 pct. Coatesville, Pa., L4	38.90	

* Includes annealing and pickling, sandblasting.

WARE- HOUSES

Base price, f.o.b., dollars per 100 lb.

HOUSES			Sheets			Strip		Plates	Shapes	Bars	Alloy Bars					
Cities	City Delivery Charge	Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled		Standard Structural	Hot-Rolled	Cold- Finished	Hot-Rolled A 4615 As Rolled	Hot-Rolled A 4140 Annealed	Cold-Drawn A 4615 As Rolled	Cold-Drawn A 4140 Annealed		
Baltimore	\$.20	6.22	7.51	7.78	6.89			6.57	6.92	6.88	8.52					
Birmingham	.15	6.35	7.35	8.25	6.60	9.60		6.65	6.65	6.50	9.00					
Boston	.10	6.50	8.10	9.00				7.23	8.23	9.42	7.47	9.65	7.34	7.49	7.20	
Buffalo	.20	6.35	7.40	8.80	6.70			6.65	6.70	6.50	7.85	12.60	12.45	15.15	15.10	
Chicago	.20	6.40	7.45	8.84	6.75			6.70	6.77	6.55	7.90	12.80	12.46			
Cincinnati	.15	6.38	7.38	8.30	6.62			6.52	6.69	6.51	7.50	12.50	12.15	14.85	14.30	
Cleveland	.20	6.49	7.37	8.25	6.86			6.65	6.70	6.55	7.90	14.80				
Cleveland	.20	6.53	7.42	8.30	6.91			6.69	7.02	6.57	7.60	14.60				
Cleveland	.20	6.38	7.38	8.45	6.72			6.69	7.02	6.57	7.60	11.96			14.85	
Denver		6.38	7.38	8.45	6.72			6.69	7.02	6.57	7.60	11.96			14.61	
Denver		7.85	8.85	10.02	8.20			7.95	7.95	8.05	9.05					
Detroit	.20	6.57	7.57	8.50	6.90			6.80	7.16	6.79	7.77	12.55	12.15	14.90	14.80	
Detroit	.20	6.57	7.57	8.50	6.90			6.80	7.16	6.79	7.77	12.45	12.10	14.80	14.75	
Houston	.20	7.35	7.65	9.93	7.70			6.85	7.60	7.70	9.50		13.10			
Houston	.20	7.35	7.65	9.93	7.70			6.85	7.60	7.70	9.50		13.10			
Kansas City	.20	7.05	8.05	8.95	7.29			7.35	7.60	7.70	9.50		13.10			
Kansas City	.20	7.05	8.05	8.95	7.29			7.35	7.60	7.70	9.50		13.10			
Kansas City	.20	7.05	8.05	8.95	7.29			7.35	7.60	7.70	9.50		13.10			
Los Angeles	.20	7.40	9.25	9.55	7.75			7.35	7.55	7.35	10.05		12.27		16.35	
Los Angeles	.20	7.40	9.25	9.55	7.75			7.35	7.55	7.35	10.05		12.27		16.35	
Los Angeles	.20	7.40	9.25	9.55	7.75			7.35	7.55	7.35	10.05		12.27		16.35	
Memphis	.10	6.79	7.69		6.90			7.01	7.09	6.88	8.24					
Memphis	.10	6.79	7.69		6.90			7.01	7.09	6.88	8.24					
Milwaukee	.20	6.47	7.47	8.21	6.71			6.61	6.86	6.60	7.69	12.34	11.99	14.69	14.64	
Milwaukee	.20	6.47	7.47	8.21	6.71			6.61	6.86	6.60	7.69	12.34	11.99	14.69	14.64	
New Orleans	.15	6.70	7.65	9.23	6.80			6.90	7.05	6.80	8.70					
New Orleans	.15	6.70	7.65	9.23	6.80			6.90	7.05	6.80	8.70					
New York	.10	6.97	7.78	8.78	7.36			6.95	7.13	7.30	8.63	12.63	12.28		14.93	
New York	.10	6.97	7.78	8.78	7.36			6.95	7.13	7.30	8.63	12.63	12.28		14.93	
Norfolk	.20	6.98	8.46	8.99	7.56			7.27	7.38	7.37	8.73					
Norfolk	.20	7.00			7.10			7.10	7.10	7.10	8.60					
Philadelphia	.25	6.19	7.29	8.09	6.96			6.49	6.54	6.74	8.19		11.66		14.61	
Philadelphia	.25	6.19	7.29	8.09	6.96			6.49	6.54	6.74	8.19		11.66		14.61	
Pittsburgh	.20	6.38	7.38	8.30	6.72			6.52	6.69	6.51	7.85	12.25	11.90	14.60	14.55	
Pittsburgh	.20	6.38	7.38	8.30	6.72			6.52	6.69	6.51	7.85	12.25	11.90	14.60	14.55	
Portland	.20	7.60	8.75	9.05	7.85			7.45	7.50	7.55	10.95					
Portland	.20	7.60	8.75	9.05	7.85			7.45	7.50	7.55	10.95					
Salt Lake City	.20	7.65	10.20	10.70	9.05			7.70	7.70	8.80	10.95					
Salt Lake City	.20	7.65	10.20	10.70	9.05			7.70	7.70	8.80	10.95					
San Francisco	.15	7.55	8.95	9.35	7.80			7.40	7.50	7.35	10.05		13.20		16.35	
San Francisco	.15	7.55	8.95	9.35	7.80			7.40	7.50	7.35	10.05		13.20		16.35	
Seattle	.20	8.10	9.80	10.15	8.20			7.80	7.75	7.80	10.95		13.65		16.30	
Seattle	.20	8.10	9.80	10.15	8.20			7.80	7.75	7.80	10.95		13.65		16.30	
St. Louis	.20	6.62	7.67	8.54	6.91			6.81	7.09	6.80	7.89	12.54	12.19	14.84	14.45	
St. Louis	.20	6.62	7.67	8.59				6.81	7.09	6.80	7.89	12.54	12.19	14.84	14.45	
St. Paul	.15	7.03	8.03	8.96	7.28			7.19	7.35	7.16	8.26		12.56		15.21	
St. Paul	.15	7.03	8.03	8.96	7.28			7.19	7.35	7.16	8.26		12.56		15.21	

Base Quantities (Standard unless otherwise keyed): Cold finished bars; 2000 lb or over. Alloy bars; 1000 to 1999 lb. All others; 2000 to 9999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets, for quantity. Exceptions: (1) 1500 to 9999 lb. (2) 1000 lb or over.

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard & Coated Nails	Woven Wire Fence 9-15 1/2 ga.	4" x 4" Fence Posts	Single Loop Bale Ties	Galv. Barbed and Twisted Barbed Wire	Merch. Wire Anodized	Merch. Wire Galv.
Alabama City R3	137	146		155	159	6.90	7.20
Aliquippa, Pa. J3	137	149			154	6.90	7.20
Atlanta A8	139	151		157	164	7.00	7.30
Bartonsville K2	139	151		157	164	7.00	7.30
Buffalo W6					6.90	7.20	
Chicago, Ill. N4	137	149		155	162	6.90	7.20
Cleveland A6	142						
Cleveland A5					6.90		
Crawfordsville M4	139	151		157	159	7.00	7.30
Donora, Pa. A5	137	146		155	159	6.90	7.20
Duluth A5	137	146	150	155	159	6.90	7.20
Fairfield, Ala. T2	137	146		155	159	6.90	7.20
Galveston D4	139						
Houston S2	145	154			167	7.30	7.70
Johantown, Pa. B3	137	149			162	6.90	7.20
Joliet, Ill. A5	137	146		155	159	6.90	7.20
Kokomo, Ind. C9	139	148		157	161	7.00	7.30
Los Angeles B2					7.85		
Kansas City S2	148	158		167	171	7.50	7.90
Minneapolis C6	142	156	150	160	168	7.15	7.55
Monessen P6	137	151			163	6.90	7.20
Moline, Ill. R3			145				
Pittsburg, Cal. C7	156	169		179	179	7.85	8.25
Portsmouth P7					6.90	7.90	
Rankin, Pa. A5	137	146			159	6.90	7.30
So. Chicago R3	137	146	145	155	159	6.90	7.30
S. San Francisco C6					179		
Sparrows Pt. B3	139			157	164	7.00	7.30
Struthers, O. Y1					6.90	7.30	
Worcester A5	143				7.20		
Williamsport, Pa. S5			150				

Cut Nails, carloads, base \$8.30 per keg at Conshohocken, Pa. (A2).

* Alabama City and So. Chicago don't include zinc extra. Galvanized products computed with zinc at 11.9¢ per lb.

C-R SPRING STEEL

Cents Per Lb F.o.b. Mill	CARBON CONTENT				
	0.26-0.40	0.41-0.60	0.61-0.80	0.81-1.05	1.06-1.35
Bridgeport, Conn. S7	5.75	8.05	9.00	11.15	13.80
Buffalo, N. Y. R7	5.75	8.05	9.00	10.95	13.25
Carnegie, Pa. S9		8.05	9.00	11.15	13.85
Cleveland A5	5.75	8.05	9.00	11.15	13.85
Detroit D1	5.90	8.25	9.20	10.95	
Detroit D2	5.90	8.25	9.20		
Harrison, N. J. C11			9.30	11.45	14.10
Indianapolis C5	5.75	8.05	9.00	10.95	
New Castle, Pa. B4	5.75	8.05	9.00	10.95	
New Haven, Conn. D1	6.20	8.35	9.30	11.25	
Pawtucket, R. I. N7	6.30	8.35	9.30	11.45	14.10
Riverdale, Ill. A1	5.85	8.05	9.00	11.15	13.85
Sharon, Pa. S1	5.75	8.05	9.00	10.95	13.25
Trenton R4		8.35	9.30	11.25	13.80
Wallingford W1	6.20	8.35	9.30	11.25	13.80
Warren, Ohio T4	5.75	8.05	9.00	10.95	13.25
Weirton, W. Va. W3	5.85	8.05	9.00	10.95	13.25
Worcester, Mass. A5	6.60	8.35	9.30	11.45	14.10
Youngstown C5	5.75	8.05	9.00	10.95	

* Sold on Pittsburgh base.

BOILER TUBES

\$ per 100 ft. carload lots, cut 10 to 24 ft. F.o.b. Mill	Size		Seamless		Elec. Weld	
	OD-In.	B.W.-Ga.	H.R.	C.D.	H.R.	C.D.
Babcock & Wilcox	2 1/2	13	28.33	33.97	26.51	31.84
	2	12	38.15	45.74	35.70	43.45
	3 1/2	12	44.05	52.82	41.23	49.73
	3 1/2	11	51.43	61.66	48.13	58.46
	4	10	68.29	81.28	63.92	77.14
National Tube	2 1/2	13	28.33	33.97	26.51	31.84
	2	12	38.15	45.74	35.70	43.45
	3 1/2	12	44.05	52.82	41.23	49.73
	3 1/2	11	51.43	61.66	48.13	58.46
	4	10	68.29	81.28	63.92	77.14
Pittsburgh Steel	2 1/2	13	28.33	33.97	26.51	31.84
	2	12	38.15	45.74	35.70	43.45
	3 1/2	12	44.05	52.82	41.23	49.73
	3 1/2	11	51.43	61.66	48.13	58.46
	4	10	68.29	81.28	63.92	77.14

Miscellaneous Prices

(Effective Aug. 3, 1954)

TOOL STEEL

F.o.b. Mill

	Cr	V	Mo	Co	Base per lb
1	1	—	—	—	\$1.54
2	1	—	—	—	2.185
3	1	—	—	—	1.705
4	1.5	—	—	—	1.90
5	2	—	—	—	1.29
6	—	—	—	—	—
High-carbon chromium	—	—	—	—	.73
Hardened manganese	—	—	—	—	.405
Special carbon	—	—	—	—	.37
Extra carbon	—	—	—	—	.31
Regular carbon	—	—	—	—	.26

Warehouse prices on and east of Mississippi are 3.5¢ per lb higher. West of Mississippi, 5.5¢ higher.

CAST IRON WATER PIPE

Per Net Ton

to 24-in., del'd Chicago	\$111.80 to \$115.30
to 24-in., del'd N. Y.	115.00 to 116.00
to 24-in., Birmingham	98.00 to 102.50
in. and larger f.o.b. cars, San Francisco, Los Angeles, for all rail shipments; rail and water shipments less	...\$129.50 to \$131.50
Class "A" and gas pipe, \$5 extra; 4-in. pipe is \$5 a ton above 6-in.	

LAKE SUPERIOR ORES

50% Fe; natural content, delivered over Lake ports. Prices effective July 1, 1953, to end of 1954 season.

Gross Ton

Openhearth lump	\$11.15
Old range, bessemer	10.30
Old range, nonbessemer	10.15
Desabi, bessemer	10.05
Desabi, nonbessemer	9.90
High phosphorus	9.90
Prices based on upper Lakes rail freight rates, Lake vessel freight rates, handling and unloading charges, and taxes thereon, in effect on June 24, 1953. Increases or decreases after such date are for buyer's account.	

COKE

urnace, beehive (f.o.b. oven)	Net-Ton
Connellsville, Pa.	\$14.25 to \$14.50
oundry, beehive (f.o.b. oven)	
Connellsville, Pa.	\$16.50 to \$17.00
oundry, oven coke	
Buffalo, del'd	\$28.08
Chicago, f.o.b.	24.50
Detroit, f.o.b.	25.50
New England, del'd	26.05
Seaboard, N. J., f.o.b.	24.00
Philadelphia, f.o.b.	23.00
Swedeland, Pa., f.o.b.	23.85
Painesville, Ohio, f.o.b.	24.00
Erie, Pa., f.o.b.	25.00
Cleveland, del'd	27.43
Cincinnati, del'd	26.56
St. Paul, f.o.b.	23.75
St. Louis, f.o.b.	26.00
Birmingham, f.o.b.	22.65
Lone Star, Tex., f.o.b.	18.50

ELECTRODES

ents per lb, f.o.b. plant, threaded, with nipples, unboxed

GRAPHITE			CARBON		
Diam. (in.)	Length (in.)	Price	Diam. (in.)	Length (in.)	Price
24	84	20.50	40	100, 110	8.95
20	72	20.00	35	110	8.95
12 to 18	72	20.50	30	110	8.95
7 to 10	60	21.00	24	72 to 84	9.10
6	60	23.25	20	90	8.95
4	40	26.00	17	72	9.10
3	48	27.25	14	72	9.50
2 1/2	30	28.00	10, 12	60	10.30
2	24	43.50	8	60	10.55

BOLTS, NUTS, RIVETS, SCREWS

(Base discount, f.o.b. mill)

Machine and Carriage Bolts

	Discount	Less Case	C.
1/2 in. & smaller x 4 in. & shorter	2	22	
1/2 in. & smaller x 6 in. & shorter	+3	18	
9/16 in. & 5/8 in. x 6 in. & shorter	+4	17	
3/4 in. & larger x 6 in. & shorter	+6	15	
All diam. longer than 6 in. & 1/2 in. & smaller x 6 in. & shorter	+15	8	
Lag, all diam. x 6 in. & shorter	+3	18	
Lag, all diam. longer than 6 in.	6	25	
Flow bolts	+2	19	
	23	23	

Stove Bolts

Packaged, package list	44 1/2—10
Bulk bulk list*	59
*Minimum quantity per item: 15,000 pieces lengths to 3"; 5,000 pieces lengths over 3". Special finishes: Zinc, Parkerized, cadmium or nickel add 6¢ per lb net. Black oil finish add 2¢ per lb net.	

Nuts, H.P., C.P., reg. & hvy.

	Base Discount	Case or Keg
3/4" or smaller	55	64
7/8" to 1 1/4" inclusive	58	66
1 1/4" to 1 1/2" inclusive	60	67 1/2

C.P. Hex regular & hvy.

All sizes	55	64
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Hot Galv. Nuts (all types)

3/4" or smaller	38	50
7/8" to 1 1/2" inclusive	41	52 1/2

Finished, Semi-finished, Slotted or Castellated Nuts

All sizes	55	66
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Rivets

	Base per 100lb	Pet Off List
1/2 in. & larger	\$9.25	
7/16 in. and smaller	37	

Cap Screws

	Discount	H.C. Heat
	Bright	Treated
New std. hex head, packaged		
5/8" x 6" and smaller and shorter	38	28
3/4", 7/8", 1" x 6" and shorter	15	1
New std. hex head, bulk*		
5/8" x 6" and smaller and shorter	50	42
3/4", 7/8", 1" x 6" and shorter	32	21
*Minimum quantity per item: 15,000 pieces 1/4", 5/16", 3/8" diam; 5,000 pieces 7/16", 1/2", 9/16", 5/8" diam; 2,000 pieces 3/4", 7/8", 1" diam.		

Machine Screws

	Discount
Packaged, gross list	44 1/2—10
Bulk, bulk list*	17
*Minimum bulk quantity, 15,000 pieces per item.	

Machine Screw & Stove Bolt Nuts

Packaged, package list	36—10
Bulk, bulk list*	17
*Minimum bulk quantity, 15,000 pieces per item.	

REFRACTORIES

Fire Clay Brick

Carloads per 1000

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add \$5.00)	\$109.00
No. 1 Ohio	102.00
Sec. quality, Pa., Md., Ky., Mo., Ill.	102.00
No. 2 Ohio	93.00
Ground fire clay, net ton, bulk (except Salina, Pa., add \$1.50)	16.00

Silica Brick

Mt. Union, Pa., Ensley, Ala.	\$115.00
Childs, Hays, Pa.	120.00
Chicago District	125.00
Western Utah	131.00
California	138.00
Super Duty	
Hays, Pa., Athens, Tex., Windham	132.00
Curtner, Calif.	150.00
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	19.00
Silica cement, net ton, bulk, Hays, Pa.	21.00
Silica cement, net ton, bulk, Chicago District, Ensley, Ala.	20.00
Silica cement, net ton, bulk, Utah and Calif.	28.50

Chrome Brick

Per net ton

Standard chemically bonded Balt.	\$86.00
Standard chemically bonded, Curtner, Calif.	96.25
Burned, Balt.	80.00

Magnesite Brick

Standard Baltimore	\$109.00
Chemically bonded, Baltimore	97.50

Grain Magnesite

St. %-in. grains

Domestic, f.o.b. Baltimore	
in bulk fines removed	\$64.40
Domestic, f.o.b. Chewelah, Wash., Luning, Nev.	
in bulk	38.00
in sacks	43.75

Dead Burned Dolomite

Per net ton

F.o.b. bulk, producing points in: Pa., W. Va., Ohio	\$14.50
Midwest	14.60
Missouri Valley	13.65

FLUORSPAR

Washed gravel, f.o.b. Rosiclaire, Ill.	
Price, net ton; effective CaF ₂ content	
72 1/2% or more	\$44.00
70% or more	42.50
60% or less	38.00

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron c.i.f.	
New York, ocean bags	11.25¢
Canadian sponge iron, Del'd in East	12.0¢
F.o.b. ship, pt., carloads	9.5¢
Domestic sponge iron, 98+% Fe, carload lots	18.0¢
Electrolytic iron, annealed, 99.5+% Fe	38.0¢
Electrolytic iron, unannealed, minus 325 mesh, 99+% Fe	53.5¢
Hydrogen reduced iron minus 300 mesh, 98+% Fe	63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 00.8+% Fe	83.0¢ to \$1.48
Aluminum	31.5¢
Brass, 10 ton lots	29.50¢ to 36.50¢
Copper, electrolytic	43.50¢
Copper, reduced	43.50¢
Cadmium, 100-199 lb. 95¢ plus metal value	
Chromium, electrolytic, 99% min., and quality, del'd	\$3.60
Lead	21.00¢
Manganese	57.0¢
Molybdenum, 99%	\$2.75
Nickel, unannealed	89.50¢
Nickel, annealed	96.50¢
Nickel, spherical, unannealed	93.50¢
Silicon	43.50¢
Solder powder, .70¢ to 9.0¢ plus met. value	
Stainless steel, 302	91.0¢
Stainless steel, 316	\$1.10
Tin	14.04¢ plus metal value
Tungsten, 99% (65 mesh)	\$4.65
Zinc, 10 ton lots	17.5¢ to 25.0¢

Ferroalloy Prices

(Effective Aug. 3, 1954)

Ferrochrome

Contract prices, cents per lb contained Cr, lump size, bulk, in carloads, delivered.
65-72 Cr, 2% max. Si.
0.025% C ... 34.50 0.20% C ... 33.50
0.06% C ... 34.50 0.50% C ... 33.25
0.10% C ... 34.00 1.00% C ... 33.00
0.15% C ... 33.75 2.00% C ... 32.75
65-69% Cr, 4.9% C ... 24.75
62-66% Cr, 4.6% C, 6-9% Si ... 25.60

S. M. Ferrochrome

Contract prices, cents per pound, chromium contained, lump size, delivered.
High carbon type: 60.65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.
Carloads ... 25.85
Ton lots ... 28.00
Less ton lots ... 29.50

High-Nitrogen Ferrochrome

Low-carbon type 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 3¢ for each additional 0.25% of N.

Chromium Metal

Contract prices, per lb chromium contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.
0.10 max. C ... \$1.18
0.50% max. C ... 1.14
9 to 11% C ... 1.11

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.)
Contract price, carloads, f.o.b. Niagara Falls, freight allowed, lump 4-in. x down, 24.75¢ per lb contained Cr plus 10.80¢ per lb contained Si. Bulk 2-in. x down, 25.05¢ per lb contained Cr plus 10.80¢ per lb contained Si. Bulk 1-in. x down, 25.25¢ per lb contained Cr plus 11.00¢ per lb contained Si.

Calcium-Silicon

Contract price per lb of alloy, lump, delivered.
30-33% Cr, 60-65% Si, 3.00 max. Fe.
Carloads ... 19.00
Ton lots ... 22.10
Less ton lots ... 23.60

Calcium-Manganese-Silicon

Contract prices, cents per lb of alloy, lump, delivered.
16-20% Ca, 14-18% Mn, 53-59% Si.
Carloads ... 20.00
Ton lots ... 22.30
Less ton lots ... 23.30

SMZ

Contract price, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe ½ in. x 12 mesh.
Ton lots ... 17.50
Less ton lots ... 19.50

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5; 38-42% Cr, 17-19% Si, 8-11% Mn, packed.
Carload lots ... 16.60
Ton lots ... 18.10
Less ton lots ... 19.35

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, Si 48 to 52%; Ti 9 to 11%, Ca 5 to 7%.
Carload packed ... 17.50
Ton lots to carload packed ... 18.50
Less ton lots ... 20.00

Ferromanganese

Maximum contract base price, f.o.b., lump size, base content 74 to 76 pct Mn:

Producing Point	Cents per-lb
Marrietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.	10.00
Clairton, Pa.	10.00
Sheridan, Pa.	10.00
Philo, Ohio	10.00
Add or subtract 0.1¢ for each 1 pct Mn above or below base content.	
Briquets, delivered, 66 pct Mn:	
Carloads, bulk	12.50
Ton lots packed	14.05

Spiegeleisen

Contract prices, per gross ton, lump, f.o.b. Palmerton, Pa.
Manganese Silicon
16 to 19% 3% max. ... \$84.00
19 to 21% 3% max. ... 86.00
21 to 23% 3% max. ... 88.50
23 to 25% 3% max. ... 91.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.
95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.
Carload, packed ... 36.95
Ton lots ... 38.45

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.
Carloads ... 30.00
Ton lots ... 32.00
250 to 1999 lb ... 34.00
Less than 250 lb ... 37.00
Premium for hydrogen-removed metal ... 0.75

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract price, carloads, lump, bulk, delivered, per lb of contained Mn ... 21.35¢

Low-Carb Ferromanganese

Contract price, cents per pound Mn contained, lump size, del'd Mn 85-90%.

Carloads	Ton	Less	
0.07% max. C, 0.06% P, 90% Mn	30.00	31.85	33.05
0.07% max. C	27.95	29.80	31.00
0.15% max. C	27.45	29.30	30.50
0.30% max. C	26.95	28.80	30.00
0.50% max. C	26.45	28.30	29.50
0.75% max. C, 80-85% Mn, 5.0-7.0% Si	23.45	25.30	26.50

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mo, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.2¢.
Carload bulk ... 11.00
Ton lots ... 12.65
Briquet contract basis carlots, bulk, delivered, per lb of briquet ... 12.65
Ton lots, packed ... 14.25

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., \$92.00 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., \$89.50. Add \$1.00 per ton for each additional 0.50% Si up to and including 17%. Add \$1.45 for each 0.50% Mn over 1%.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, packed.

Ton lots	Carloads
96% Si, 2% Fe	20.10
97% Si, 1% Fe	20.60

Silicon Briquets

Contract price, cents per pound of briquets, bulk, delivered, 40% Si, 2 lb Si briquets.
Carloads, bulk ... 6.30
Ton lots ... 7.90

Electric Ferrosilicon

Contract price, cents per lb contained Si, lump, bulk, carloads, delivered.

25% Si	20.00	75% Si	13.80
60% Si	10.80	85% Si	15.55
65% Si	12.20	90.55% Si	17.00

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.

Ton lots	Cast	Turnings	Distilled
	\$2.05	\$2.95	\$3.75
Less ton lots	2.40	3.30	4.55

Ferrovandium

35-55% contract, basis, delivered, per pound, contained V.
Openhearth ... \$3.00-\$3.10
Crucible ... 3.10-3.20
High speed steel (Primos) ... 3.20-3.25

Alsilfer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y., per lb.

Carloads ... \$2.50
Ton lots ... 10.10

Calcium molybdate, 46.3-46.6% f.o.b. Langloeth, Pa., per pound contained Mo ... \$1.10

Ferrocolumbium, 50-60%, 2 in. x D contract basis, delivered per pound contained Cb.
Ton lots ... \$9.50
Less ton lots ... 9.50

Ferro-Tantalum-Columbium, 20% Ta, 40% Cb, 0.30% C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus T a ... \$4.75

Ferromolybdenum, 55-75%, f.o.b. Langloeth, Pa., per pound contained Mo ... \$1.10

Ferrophosphorus, electric, 22-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., \$4.00 unitage, per gross ton ... \$90.00
10 tons to less carload ... \$110.00

Ferrotitanium, 40% regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti ... \$1.10

Ferrotitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti ... \$1.50
Less ton lots ... 1.50

Ferrotitanium, 15 to 18% high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload, per net ton ... \$177.00

Ferrotungsten, ¼ x down, packed, per pound contained W, ton lots, f.o.b. ... \$3.50

Molybde oxide, briquets or cans, per lb contained Mo, f.o.b. Langloeth, Pa. ... \$1.10
bags, f.o.b. Washington, Pa., Langloeth, Pa. ... \$1.10

Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound.

Carload, bulk, lump ... 15.50
Ton lots, packed lump ... 16.75
Less ton lots, lump, packed ... 17.25

Vanadium Pentoxide, 86-89% V₂O₅ contract basis, per pound contained V₂O₅ ... \$1.20

Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.
Ton lots ... 21.00

Zirconium, 12-15%, contract basis lump, delivered, per lb of alloy.
Carload, bulk ... 8.00

Boron Agents

Borosil, contract prices per lb of alloy del. f.o.b. Philo, Ohio, freight allowed. B, 3-4% Si, 40-45%, per lb contained B ... \$5.35

Bortam, f.o.b. Niagara Falls
Ton lots, per pound ... 45¢
Less ton lots, per pound ... 50¢

Corbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4-5-7.5%, f.o.b. Suspension Bridge, N. Y., freight allowed.
Ton lots per pound ... 10.00

Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D, Ton lots ... \$1.20
F.o.b. Wash., Pa.; 100 lb up 10 to 14% B ... 1.20
14 to 19% B ... 1.20
19% min. B ... 1.50

Grainal, f.o.b. Bridgeville, Pa. freight allowed, 100 lb and over
No. 1 ... \$1.00
No. 6 ... 67¢
No. 79 ... 50¢

Manganese-Boron, 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd.
Ton lots ... \$1.40
Less ton lots ... 1.35

Nickel-Boron, 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered
Less ton lots ... \$2.00

Silenz, Contract basis, delivered
Ton lots ... 45.00

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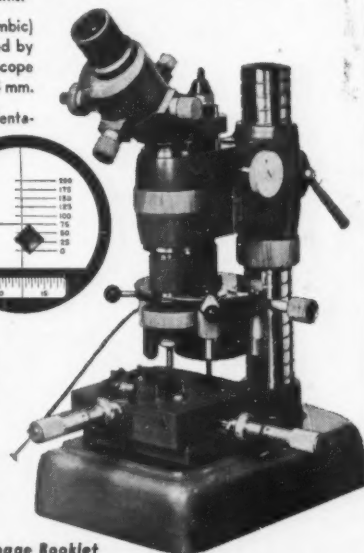
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- No. 1H MILWAUKEE Plain Horizontal Mill, new 1941
- No. 2H KEARNEY & TRECKER Horizontal Mill, new 1943
- No. 2M1 CINCINNATI Vertical Mill, new 1951
- No. 3-24 CINCINNATI High Power Plain Mill, rectangular overarm
- 16" x 54" centers SIDNEY Tri-trol Lathe, taper attachment, chuck, 7½HP motor, new 1942
- No. 3A WARNER & SWASEY Turret Lathe, Timken Spindle, electric chuck, tooling
- No. 4 WARNER & SWASEY Turret Lathe, Pre-selector head, Bar feed, new 1943
- No. 12 GISHOLT Automatic Lathe, new 1947
- 36" BULLARD High Speed Spiral Drive Vertical Turret Lathe, 200 RPM, fine feed, new 1942
- 42" BULLARD Spiral Drive Vertical Turret Lathe, extra high column
- 42" KING Vertical Boring Mill, 10 HP AC motor, power rapid traverse

4" bar GIDDINGS & LEWIS Table Type Horizontal Boring Mill, extra wide table, new 1943

- 30" MORTON Hydraulic Keyseater, 1942
- No. 6A MITTS & MERRILL Keyseater, capacity 0 to 4" width, 36" stroke, tooling
- 4" FOSDICK Sensitive Radial Drill, new 1951
- 4" HAMMOND Jackknife Radial Drill tapping attachment, new 1948
- 5'-13" column CARLTON Radial Drill, AC motor & gearbox on base
- 6'-17" column CINCINNATI BICKFORD Super Service Radial Drill, power rapid traverse, motor on arm
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THE CLEARING HOUSE

News of Used and Rebuilt Machinery

No Pickup Till Fall . . . A mild upturn in used tool sales in June began to peter out in July in the Midwest, and most used tool suppliers aren't expecting much relief before fall. A few old hands feel that, even then, there won't be much spark in this year's fall activity.

The opinion represents a considerably less optimistic outlook than was true one month ago, and reflects opinion prevalent in Detroit, Cleveland and the East. Dealers who only 30 days ago were cautiously expanding inventory now have the feeling that with a slow July and an equally slow August in prospect, their inventories are too heavy. They will be trying to cut stocks during the next 60 days, perhaps even longer.

Heavy Units Do Better . . .

Those who cry "wolf" are careful to point out, however, that despite this gloomy picture, dollar volume can be fairly good. Light equipment has taken a beating during the plant vacation period. But a scattering of sales of heavy equipment, at substantial prices, has sustained some dollar volume for dealers.

One dealer, for instance, reports that after 2 years of watching new Italian tools move into the U. S. market, he last month sold a heavy equipment item to an Italian buyer for delivery to that country. Another, after very poor sales through the month, unloaded the heaviest piece of special equipment in his shop at a good price.

There is a slight backlog of outside heavy equipment rebuilding and it appears this strength will continue. Equipment in this market has moved to the southwest, to the east, and even into downstate Illinois areas.

Beat the Bushes . . . Dealers are spending considerable time on the

road. Where a year and a half ago business trips were for the purpose of adding to inventory, most dealers are now getting out to sell.

The sales-to-inquiry ratio, often regarded as a reliable barometer, has been slipping. After moving up through May and June, Midwest dealers report a slip in the past 30 days, and there is no sign of improvement at present.

It is notable that in the last 30 days even the volume of inquiries has slipped badly. Inquiries had fallen in the past 3 months but the sale ratio has held level, and in some cases was gaining. This trend is now reversed. New plant starts are down in the area, but there seems to be very little pricing of equipment for even paper planning this month.

Vacations Hurt . . . Falloff in light equipment sales is attributed largely to the summer vacation period, which has been accompanied by a generally sharper downturn in raw material and equipment buying than suppliers in most lines had anticipated. Lighter equipment sales are expected to reflect the greater plant activity after the vacation period, but most dealers aren't at the moment laying in a heavier stock of light tools.

Shopping at auctions continues but volume is not as strong as was the case 30 days ago. And here, too, the drop is not entirely due to plant vacation periods, but seems to be caused by considerably greater caution about inventory additions.

Recent settlement of the Indo-China war will probably cut into fourth quarter sales, according to most dealers. Affect of the negotiated settlement will probably be more psychological than concrete since most used machinery people watched their sales curves dip even while the fighting was still in progress on the Indo-China battlefields.